ENSV Inspection Transmittal Summary Report Inspection Date: Preliminary SNC Findings: **Inspection Type:** Media: 11/18/2010 No CEI **RCRA Transmittal Date:** NOV / NOPV / NOPF: Inspector: No DEDRIEL NEWSOME **Facility Name:** Northrop Grumman Guidance and Electronics Co. MM Participationg Progams: **Activity Number: ID Number:** Address: MOD007152903 4811 West Kearney Street Springfield MO 65803 **Federal Facility:** Potential EJ: Federal Activity: No No SBREFA Provided: Security Handout Provided: MM Screening Completed: EMS ISO 14001: **Compliance Officer: BETH KOESTER** No Yes N/A N/A ACS Code: **Selection Criteria 2: Selection Criteria 1:** RCRA02 LQG (KS,MO,NE) **Inspection Findings:**

This facility has closed and is in the process of being investigated and remediated under the oversight of MDNR Superfund.

A ○ ○ \
504171
RCRA

Comments:

Target Quality:
Closed facility.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 7 901 NORTH 5TH STREET KANSAS CITY, KANSAS 66101

DEC 2 0 2010

MEMORANDUM

SUBJECT:

RCRA Compliance Evaluation Inspection at

Northrop Grumman Guidance and Electronics Company, Inc., Springfield, MO

MOD007152903

FROM:

Dedriel Newsome, Environmental Engineer Day Land

THRU:

John Houlinan, Chief

ENSV/EFCB

TO:

Donald Toensing, Chief

AWMD/ RESP

At the request of Air & Waste Management Division (AWMD), I performed a Resource Conservation and Recovery Act (RCRA) compliance evaluation inspection (CEI) at the Northrop Grumman Guidance and Electronics Company, Inc. in Springfield, MO (Northrop-Springfield). Northrop-Springfield is located at 4811 W. Kearney St, Springfield, MO 65803. The mailing address is P.O. Box 1693, Mail Stop 1401, Baltimore, MD 21203. I conducted the inspection on 11/18/2010 under the authority of RCRA Section 3007(a), as amended. During the inspection, I collected the information and data necessary to determine compliance with the applicable regulatory and statutory requirements. This memo and attachments present the results of the inspection. I conducted the inspection as a Level B Multi-Media Inspection and the Multi-Media Screening Checklist is included as attachment 1. Based on the information obtained during the course of the inspection, I inspected the facility as a conditionally exempt small quantity generator (CESQG) of hazardous waste. According to the EPA RCRAInfo database, this facility was last inspected by the EPA on 12/6/2005. Five violations were observed for management of satellite accumulation containers, job descriptions and incomplete manifests during the 2005 CEI.

Inspection Procedures

On the afternoon of 11/15/2010, I conducted a drive-by evaluation of Northrop-Springfield. There were no buildings visible on-site. Therefore, on 11/16/2010, I contacted Mr. Saylor, the facility contact listed in the EPA RCRAInfo database. I informed him that I wanted to conduct a CEI at the Northrop-Springfield facility. Mr. Saylor stated that he was located in



Baltimore, MD and that they had no company personnel located in Springfield, MO. Mr. Saylor and I made arrangements for me to meet with their contractor, Stantec Consulting (Stantec), Springfield, IL, at the trailer office located on-site on 11/18/2010 at 9:30A.M.

On 11/18/2010, I arrived at the site approximately 9:30A.M. and met two Stantec employees. They were Mark Densmore, Sr. Geologist, and Greg Michael, Sr. Engineer. They acted as the Northrop-Springfield facility representatives while I was on-site. However, they did not sign any of the inspection forms. Therefore, I emailed them to Mr. Saylor on 11/22/2010 for his signature. Mr. Saylor returned them on 11/23/2010 along with additional analytical information (see attachments 2 and 3). I also discussed my inspection findings with Mr. Saylor on the telephone at this time. Mr. Saylor requested that all EPA correspondence be sent to him at the above mailing address.

Facility Description

Northrop-Springfield is no longer operating. In approximately 2007, they sold what they could and demolished the building. Currently, Stantec is conducting on-site investigative and remediation activities. The investigative and remediation activities are being overseen by the Missouri Department of Natural Resources (MDNR), Division of Geology and Land Survey, Superfund Section. The MDNR contact is Evan Kifer located in Jefferson City, MO. Mr. Kifer stated that Northrop-Springfield is currently operating under a 1993 consent decree with MDNR that is in the process of being updated and expected to be finalized by December 2010. The contaminants are primarily tetrachloroethylene (TCE), 1,1,1-trichloroethane (TCA) and other "daughter" constituents. The areas of concern are shown on the layout included as attachment 4. Remediation activities currently include soil and groundwater treatment.

Soil remediation consists of Electrical Resistance Heating (ERH). A full-scale ERH system pilot was conducted on the New Acid Pit (NAP) area and was completed in approximately 2009. Based on the pilot results, an ERH system is currently being installed on the Original Acid Pit (OAP) Treatment Area (see attachment 3 for layout). The ERH system is expected to be operational by approximately January 2011 and the treatment is expected to take about six months. In general, the ERH system heats the soil to remove the contaminants. This generates steam and vapors which are captured. The steam is condensed and the water is discharged to an on-site wastewater treatment system (WWTS). The vapors from the high contaminated areas are treated in a catalytic oxidizer. The vapors from the low contaminated areas are treated in an activated carbon unit. The high and low contaminated areas are predetermined based on previous analytical sampling results.

Until about June 2010, contaminated groundwater was being extracted and treated in the on-site WWTS. The WWTS consisted of pumping the groundwater into a surge tank, treating it in an air stripper, and discharging it to the city sewer under a pretreatment agreement with the city. Northrop-Springfield has about 14 groundwater recovery wells on-site. Since June 2010, Emulsified Vegetable Oil (EVO) is being used to treat the contaminated groundwater. This treatment process consists of injecting a vegetable oil/bacteria culture mix into the groundwater for degradation of contaminants.

The manifest for the last shipment of hazardous waste manifested off-site when Northrop-Springfield ceased operating in 2007 is included as attachment 5f. Since that time, the wastes generated on-site consisted of the following:

- **Spent Activated Carbon** was generated twice from the ERH pilot study. It was generated on 3/25/2009 and 9/29/2008. It was collected in containers and manifested offsite on 4/9/2009 and 12/10/2008, respectively. It was manifested as a F002/F003/F005 hazardous waste to Clean Harbors (see attachments 5d and 5e for manifests).
- Soil Cuttings, Sampling Cores and Sediment are occasionally generated on-site. When they are generated from a contaminated area that is not RCRA hazardous, then they are handled as non-hazardous waste. When they are generated from a contaminated area that is RCRA hazardous, then they are handled as hazardous waste. On 8/17/2009, 7 tons of hazardous soil cuttings were generated on-site. They were manifested off-site on 9/28/2009 to Clean Harbors as a F002/F003/F005 hazardous waste (see attachment 5a for manifest). On 3/25/2009, 4950 pounds of hazardous sampling cores from the NAP pilot ERH system were generated. They were manifested off-site on 4/9/2009 to Clean Harbors as a F002/F003/F005 hazardous waste (see attachment 5c for manifest). On 9/28/2009, 9 tons of non-hazardous soil cuttings were manifested off-site to Clean Harbors (see attachment 5b for manifest).

A signed LDR notice for the 7 tons of F002 soil cuttings manifested off-site on 9/29/2009 could not be located at the time of the inspection. Mr. Saylor stated that they maintain a copy of the manifests on-site and he also maintains an official file in Baltimore, MD. Mr. Saylor stated that he had a copy of the signed LDR notice that was sent with the manifest shipment. He emailed me the signed LDR notice on 11/19/2010 (see attachment 5a.i).

At the time of the inspection, I observed two drums labeled as non-hazardous waste on-site. They were a drum of sediment from water that was removed from the non-hazardous A/B Lagoon area and a drum of Geoprobe soil cuttings from the non-hazardous sanitary lagoon. I asked for the analytical results relating to these two waste streams. The data could not be located at the time of the inspection. Mr. Saylor emailed me this data on 11/23/2010 verifying that these wastes were non-hazardous. The data is included as attachment 3, pages 5 through 10.

• Air Stripper Residue is generated from the WWTS air stripper unit. It consists of hardened residue (lime stone) that clogs the holes in the stripper trays. The trays were cleaned twice (exactly when was unknown) since 2008. Mr. Michael stated that the hardened residue was physically removed and that no chemicals were used. He stated that about 5 to 10 gallons of residue were generated from each cleaning. The air stripper residue would appear to be a F002/F003/F005 hazardous waste sludge. The residue was returned to the OAP Treatment Area (see attachment 4 for layout). I discussed this disposal with Mr. Kifer and he stated that it was acceptable. He stated that they have let them consolidate some of the wastes on-site in the past. It should be noted that now the

OAP Treatment Area is capped by the ERH system. Therefore, any air stripper residue generated in the future will have to be handled differently.

- Surge Tank Residue builds up in the cone shaped bottom surge tank. Mr. Michael believed that the tank was cleaned once since 2008. He stated that he did not know the amount of residue that was generated, but would guess that it was less than 100 gallons. The surge tank residue would appear to be a F002/F003/F005 hazardous waste sludge. Mr. Michael stated that the tank residue was returned to the OAP Treatment Area (see attachment 4 for layout). I discussed this disposal with Mr. Kifer and he stated that it was acceptable the same as the air stripper residue above. Mr. Michael estimated that currently the surge tank contains about two feet of residue. It should be noted that now the OAP Treatment Area is capped by the ERH system. Therefore, any surge tank residue generated in the future will have to be handled differently.
- Personal Protective Equipment (PPE) is used on-site. Nitrile gloves are worn during sampling activities. Approximately one to two 2-lb boxes of spent gloves are generated a quarter. Any gloves contaminated with listed waste would also appear to be listed due to the contained-in policy. These gloves were determined to be non-hazardous by Northrop-Springfield based on knowledge and were disposed in the general trash. I discussed this determination with Mr. Kifer and he stated that Northrop-Grumman received approval for a contained-out determination (see attachment 6). According to the contained-out determination approval document, the contained-out determinations for listed hazardous wastes proposed therein was intended to apply to the soil and solid environmental media generated by current and future site activities within the NAP, OAP, and Building Footprint Subfloor area of concerns (see attachment 6, page 5).
- General Trash consists of paper, refuse, cardboard, etc. It is collected in an approximately 2-cubic yard dumpster. Allied Waste, Springfield, MO is contacted as needed to collect the waste which is about once a month.

Mr. Michael and Mr. Densmore stated that no waste is generated from the EVO treatment process. Also, there have been no universal waste lamps or batteries generated on-site since the facility closed.

Northrop-Springfield last notified on 5/4/2009 as a large quantity generator (LQG) of F002, F003 and F005 hazardous wastes according to the EPA RCRAInfo database (see attachment 7). I reviewed the RCRAInfo Handler Sheet for any incorrect data and none were noted as shown on attachment 7. Based on the latest manifests provided for review and known hazardous wastes generation dates, it appears that Northrop-Springfield last manifested hazardous waste off-site in September 2009 (see attachments 5a through 5e). They manifested 7 tons of F002 hazardous waste and would have been a LQG at that time. Since September 2009 it appears that they did not generate any hazardous waste other than a small amount of air stripper residue and the estimated 100 gallons of surge tank residue. However, exactly when the air stripper residue and surge tank residue were generated was unknown. Therefore, at the time of the inspection, I inspected Northrop-Grumman as a CESQG. However, they will probably be a SQG or LQG again at various times when the surge tank is cleaned, the ERH system is operating

and/or other remedial activities are conducted on-site. The Entry / Exit checklist completed during the inspection is included as attachment 8.

Attachments

1. Multi-Media Inspection Checklist (2 pages)

2. 11/22/2010 EPA Email Requesting Signature on the Confidentiality Notice and Document of Receipt (4 pages)

- 3. 11/23/2010 Northrop-Springfield Email Returning the Signed Confidentiality Notice and Document of Receipt Along with Additional Analytical Information (10 pages)
- 4. Facility Layout with Areas of Concern Noted (1 page)
- 5. Manifest Documents
 - a. 9/28/2009 Manifest and Unsigned LDR Notice –F002 soil cuttings (2 pages)
 i. Email with Signed LDR Notice for 9/28/09 Manifest (2 pages)
 - b. 9/28/2009 Manifest and LDR Notice -non-hazardous soil cuttings (1 page)
 - c. 4/9/2009 Manifest and LDR Notice F002/F003/F005 NAP pilot sampling cores (7 pages)
 - d. 4/9/2009 Manifest and LDR Notice F002/F003/F005 spent activated carbon-2nd batch when pilot was done (3 pages)
 - e. 12/10/2008 Manifest and LDR Notice F002/F003/F005 spent activated carbon-1st batch when pilot was operating (3 pages)
 - 12/13/2007 Manifest and LDR Notice last manifest shipment of various hazardous wastes when facility closed (10 pages)
- 6. 12/6/2010 Email of the Contained-Out Determination Approval Document (8 pages)
- 7. EPA RCRAInfo Handler Information Report (1 page)
- 8. Entry / Exit Checklist (2 pages)

Facility Name: Northrop Gromman Guidance Electronic Street 4 1 1 W. Kear May St. Street 4 1 W. Kear May St. Main facility activity, major process chemical(s) & description: for marked degreeating (water-based II), abagenated-based II, non-halogenated-based III, combustion (boilet, furnaces, oxidizers) plain (strone II), other 1 word of the street of the facility located in an apparant low income area (e.g., with many abandoned and dispidated properties)? ENVIRONMENTAL JUSTICE (Note: Forward to EJI a concern is identified during your inspection) 1. Is the facility located in an apparant low income area (e.g., with many abandoned and dispidated properties)? EMERGENCY PLANNING & COMMUNITY RIGHT TO KNOW ACT (EPCRA) & TOXIC SUBSTANCE CONTROL ACT (ISCA) Closed 1. Did facility file a Trel II report with fire department, Local & State Emergency Planning Committee? Yes No Forward to EJI & Toxin (lead, mercury, or polycyclic aromatic compounds) at any time over the least Syears? No (stop) Yes Forward to EJI & Stored 2500 bis of ammonia 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Forward To: EJ EPCRA / RMP / TSCA CWA Wetlands UIC PWS CAA / CFC RCRA UST SPCC REGION VII MULTIMEDIA SCREENING CHECKLIST
water treatment □, refrigeration □, manufracturing , plats washington □, other □,	Facility Name: Northrup Grumman Guidance & Electronics Inspector Dedrie Nows Media: RCRA Street: 4811 W. Kearney St. City: Springfield State: MO Zip: 65803 SIC/NAICS Code 5 6291 Phone: 410-993-7080 Facility Contact: Adam E. Saylor Sic/NAICS Code 5 6291 Number of Employees: Closed facility Work Hours/Shifts Closed facility Facility Subject to OSHA regulations Yes \(No.
water treatment □, refrigeration □, manufracturing p, plats water treatment □, other □, othe	
1. Is the facility located in an apparent low income area (e.g., with many administry countries, school, etc.)? No □ (stop) Yes □ Forward to EJ If yes, is facility less then 1000 feet from nearest routinely occupied property (house, school, etc.)? No □ (stop) Yes □ Forward to EJ EMERGENCY PLANNING & COMMUNITY RIGHT TO KNOW ACT (EPCRA) & TOXIC SUBSTANCE CONTROL ACT (TSCA) € 1. Did facility file a Tier II report with fire department, Local & State Emergency Planning Committee? Yes □ No □ Forward to EPCRA 1. Did facility manufacture, import, or process (formulate, blend, package) >25,000 lbs of a chemical or >100 lbs of a Persistent Bioaccumulative 2. Did facility manufacture, import, or process (formulate, blend, package) >25,000 lbs of a chemical or >100 lbs of a Persistent Bioaccumulative 3. Has the facility: If any box in question 3 is marked - Forward to EPCRA 3. Has the facility: If any box in question 3 is marked - Forward to EPCRA 4. Stored ≥500 lbs of ammonia □ ≥100 lbs of chilorine □, or ≥10,000 lbs of an industrial chemical □, at any time over the last 2 years? □ a. Stored ≥500 lbs of ammonia □ ≥100 lbs of chilorine □, or ≥10,000 lbs of an industrial chemical □, at any time over the last 2 years? □ b. Stored ≥10,000 lbs of pressurized filammable material (propane, methane, butane, pentane, etc.) at any time over the last 2 years? □ d. Generated ≥ one half pound of metal dusts, turnes, or metal turnings, over the last calendar year? □ d. Generated ≥ one half pound of metal dusts, turnes, or metal turnings, over the last calendar year? □ d. Generated ≥ one half pound of metal dusts, furnes, or metal turnings, over the last calendar year? □ d. Generated ≥ one half pound of metal dusts, furnes, or metal turnings, over the last calendar year? □ d. Generated ≥ one half pound of metal dusts, furnes, or metal turnings, over the last calendar year? □ d. Generated ≥ one half pound of metal dusts, furnes, or metal turnings, over the last calendar year? □ d. Generated ≥ one half pound of metal dusts, furn	water treatment □, refrigeration □, manufacturing □, parts washers beginning (chrome □, other). non-halogenated-based □), combustion (boiler, furnaces, oxidizers) □ plating (chrome □, other).
 Did facility file a lief in report with life experimental control of a control of	1. Is the facility located in an <u>apparent</u> low income area (e.g., with many abandoned and anaphabeth.)? No □ (stop) Yes □ Forward to EJ
d. Generated ≥ one half pound of metal dusts, fumes, or metal turnings, over the facility have any oil filled electrical equipment. No ⋈ (stop) Yes ☐ Forward to TSCA and ask Has facility tested oil filled equipment to determine PCB content; No ☐ Yes ☐ number containing PCBs greater than 50 ppm ☐ and percent of all equipment tested ☐ Is equipment leaking (including wet or weeping equipment)? No ☐ Yes ☐ — Get Photo CLEAN WATER ACT (CWA) - National Pollution Discharge Elimination System (NPDES), Industrial Pretreatment, Storm Water, & Wetlands 1. Does the facility discharge any wastewater to storm sewers, surface water, or the land? No ☐ (stop) Yes ☒ 1. If yes, are all wastewater discharges permitted? Yes ☒ No ☐ Forward to CWA 1. If yes, are the discharges permitted by: State? ☐ . City? ☒ ☐ If yes, Stop here. 1. If yes, are the discharges permitted by: State? ☐ . City? ☒ ☐ If yes, Stop here. 1. If yes, does the city have a state or EPA approved pretreatment program? Yes ☒ No ☐ Forward to CWA 1. If yes, does the city have a state or EPA approved pretreatment program? Yes ☒ No ☐ Forward to CWA 1. Stop Yes ☒ No ☐ Forward to CWA 2. During rainfall events, can storm water carry pollutants from manufacturing, processing, storage, disposal, shipping and receiving areas, or from construction sites >1 acre, to storm sewers or surface water? No ☐ (stop) Yes ☒ No ☐ Forward to CWA 1. If yes, does the facility have an NPDES permit for these storm water discharges? Yes ☒ No ☐ Forward to CWA 2. Did you see any wastewater discharges not identified by the facility? No ☒ (stop) Yes ☐ Identify location, time, appearance of discharge: 2. Ooes the facility have any wetland areas (e.g. streams, ponds, or temporarily wet areas)? No ☒ (stop) Yes ☐ Identify location, time, appearance of the more than the scale of the provided of the more than the scale of the provided of the provided of t	 Did facility file a Tier If report with file department, 2554 at 187 department, 2554 at
1. Does the facility discharge any wastewater to storm sewers, surface water, or it to the lifyes, are all wastewater discharges permitted? Yes No Forward to CWA 2. Does the facility have process wastewaters that are discharged to a city POTW (Publicly Owned Treatment Works)? No (stop) Yes No Forward to CWA If yes, are the discharges permitted by: State? □, City? □ - If yes, Stop here. No Forward to CWA If yes, does the city have a state or EPA approved pretreatment program? Yes No or Don't Know □ Forward to CWA 3. During rainfall events, can storm water carry pollutants from manufacturing, processing, storage, disposal, shipping and receiving areas, or from construction sites >1 acre, to storm sewers or surface water? No □ (stop) Yes □ No □ Forward to CWA If yes, does the facility have an NPDES permit for these storm water discharges? Yes □ No □ Forward to CWA 2. Does the facility have any wetland areas (e.g. streams, ponds, or temporarily wet areas)? No □ (stop) Yes □ - Identify location, time, appearance of discharge: 3. Does the facility have any wetland areas (e.g. streams, ponds, or temporarily wet areas)? No □ (stop) Yes □ - Identify location, time, appearance of discharge: 4. Did you see any wetland areas (e.g. streams, ponds, or temporarily wet areas)? No □ (stop) Yes □ - Identify location, time, appearance of discharge: 4. Does the facility have any wetland areas (e.g. streams, ponds, or temporarily wet areas)? No □ (stop) Yes □ - Identify location, time, appearance of discharge: 4. Did you see any wetland areas (e.g. streams, ponds, or temporarily wet areas)? No □ (stop) Yes □ - Identify location, time, appearance of discharges. 5. Does the facility have any wetland areas (e.g. streams, ponds, or temporarily wet areas)? No □ (stop) Yes □ - Identify location, time, appearance of discharges.	d. Generated ≥ one half pound of metal dusts, fumes, or metal turnings, over the last calculated year. 4. Does the facility have any oil filled electrical equipment. No □ (stop) Yes □ Forward to TSCA and ask. Has facility tested oil filled equipment to determine PCB content; No □ Yes □ number containing PCBs greater than 50 ppm and percent of all equipment tested. Is equipment leaking (including wet or weeping equipment)? No □ Yes □ - Get Photo
2. Does the facility have process wastewaters that are discharged to a city FOTW (1 date). If yes, are the discharges permitted by: State? □ , City? ☑ − If yes, Stop here. If yes, does the city have a state or EPA approved pretreatment program? Yes ☑ No or Don't Know □ Forward to CWA 3. During rainfall events, can storm water carry pollutants from manufacturing, processing, storage, disposal, shipping and receiving areas, or from construction sites >1 acre, to storm sewers or surface water? No □ (stop) Yes ☑ If yes, does the facility have an NPDES permit for these storm water discharges? Yes ☑ No □ Forward to CWA Did you see any wastewater discharges not identified by the facility? No ☑ (stop) Yes □ - Identify location, time, appearance of discharge: (Get Photo) Forward to CWA Does the facility have any wetland areas (e.g. streams, ponds, or temporarily wet areas)? No ☑ (stop) Yes □ If yes, have any wetland areas been dredged, filled, channelized, dammed, or had gravel removed from them within the last 5 years?	CLEAN WATER ACT (CWA) - National Pollution Discharge Elimination System (NPDES), Industrial Pretreatment, Storm Water, & Wetlands 1. Does the facility discharge any wastewater to storm sewers, surface water, or the land? No □ (stop) Yes ▼ 1. Does the facility discharge any wastewater to storm sewers, surface water, or the land? No □ (stop) Yes ▼
If yes, have any wetland areas been dredged, filled, channelized, dammed, or had gravel removed from them within the last 5 years? No Forward to CWA No Forward to CWA No Forward to CWA No Forward to CWA (Get Photo) Forward to CWA (Get Photo) Forward to CWA Solution Forward to CWA (Get Photo) Forward to CWA (Stop) Yes Solution Forward to CWA (Get Photo) Forward to CWA	2. Does the facility have <u>process wastewaters</u> that are discharged to a city POTW (1 dailely 5 of the facility have <u>process wastewaters</u> that are discharged to a city POTW (1 dailely 5 of the facility have <u>process wastewaters</u> that are discharged to a city POTW (1 dailely 5 of the facility have <u>process wastewaters</u> that are discharged to a city POTW (1 dailely 5 of the facility have <u>process wastewaters</u> that are discharged to a city POTW (1 dailely 5 of the facility have <u>process wastewaters</u> that are discharged to a city POTW (1 dailely 5 of the facility have <u>process wastewaters</u> that are discharged to a city POTW (1 dailely 5 of the facility have <u>process wastewaters</u> that are discharged to a city POTW (1 dailely 5 of the facility have <u>process wastewaters</u> that are discharged to a city POTW (1 dailely 5 of the facility have <u>process wastewaters</u> that are discharged to a city POTW (1 dailely 5 of the facility have <u>process wastewaters</u> that are discharged to a city POTW (1 dailely 5 of the facility have <u>process wastewaters</u> that are discharged to a city POTW (1 dailely 5 of the facility have <u>process wastewaters</u> that are discharged to a city POTW (1 dailely 5 of the facility have <u>process wastewaters</u> that are discharged to a city POTW (1 dailely 5 of the facility have <u>process wastewaters</u> that are discharged to a city POTW (1 dailely 5 of the facility have <u>process wastewaters</u> that are discharged to a city POTW (1 dailely 5 of the facility have <u>process wastewaters</u> that are discharged to a city POTW (1 dailely 5 of the facility have <u>process wastewaters</u> that are discharged to a city POTW (1 dailely 5 of the facility have <u>process wastewaters</u> that are discharged to a city POTW (1 dailely 5 of the facility have <u>process wastewaters</u> that are discharged to a city POTW (1 dailely 5 of the facility have <u>process wastewaters</u> that are discharged to a city POTW (1 dailely 5 of the facility have <u>process wastewaters</u> that are discharged to a city POTW (1 dailely 5 of the facility have <u>process wastewat</u>
5. Does the facility have any wetland areas (e.g. streams, ponds, or temporarily wet areas)? No (stop) Yes (st	construction sites >1 acre, to storm sewers or surface water? No 🗀 (stop) 1000 No 🗆 Forward to CWA
	5. Does the facility have any wetland areas (e.g. streams, ponds, or temporarily wet areas)? No (stop) Yes (stop) Yes (stop) If yes have any wetland areas been dredged, filled, channelized, dammed, or had gravel removed from them within the last 5 years?

<u>GRAY SHADED AREAS INDICATE ITEMS YOU NEED TO LOOK FOR DURING VISUAL INSPECTION</u>

Version 08,23.05a

	SAFE DRINKING WATER ACT (SDWA) - Underground Injection Control (UIC) & Public Water System (PWS) 1. Does facility discharge any liquids to the subsurface (septic systems, disposal wells, cesspools, etc.)? No (stop) Yes (stop) Yes Forward to UIC If yes, do these liquid wastes consist of sanitary wastewater only? Yes No (private well, pond, etc.)? No (stop) Yes Forward to PWS If yes, does the facility test or monitor its drinking water in order to comply with state regulations? Yes No (PWS)
(CLEAN AIR ACT (CAA) and CFCs Clubed
	Do you see any dense, non-steam, smoke or dust emissions leaving the facility property? No ☑ Yes ☐ Forward to CAA
	Source(Get Photo)
,2	2. Does the facility have any new air pollution emitting equipment that was constructed or installed in the past 5 years? No (stop) Yes I If yes, is equipment permitted? Yes I No I Forward to CAA Describe:
3	Does the facility have any cooling units that contain >50 lbs of refrigerant? No 💆 (stop) Yes 🗆 Forward to CFC
	If yes, are these units: Self-serviced? ☐ Contract Serviced? ☐ - Service Company:
4	. Does the facility have a refrigeration process that contains more than 10,000 lbs of ammonia? No 💢 (stop) Yes 🗆 Forward to EPCRA/RMP
5	. Does the facility service motor vehicle air conditioning systems? No 💢 (stop) Yes 🗆 Forward to CFC
	ESOURCE CONSERVATION AND RECOVERY ACT (RCRA) and UNDERGROUND STORAGE TANKS (UST) Does the facility generate more than 30-gallons (220 lbs./100kg) of hazardous waste per month or at any one time? No (stop) Yes
1	
	If yes, does facility have an EPA Hazardous Waste Identification Number? Yes (stop) No Forward to RCRA
2	. Is hazardous waste treated ☑, stored >90-days □, burned □, land filled □, put in surface impoundments □ or waste piles □?
2	No □ (stop) Yes □ If yes, is the facility permitted for above described activity? Yes □ No □ Forward to RCRA
	Did you see or does the facility have any large quantities of materials that the facility claims to be non-hazardous waste material (>10 drums, roll-offs, waste piles, etc. – exclude clean office trash, cardboard, & packaging type wastes)? No 🗆 (stop) Yes 🗆
	Material Claimed To Be Non-Hazardous How does the facility know these wastes are non-hazardous?
	Testing, industry or manuf. info, MSDS, etc. : None available : Forward to RCRA
	Testing, industry or manuf. info, MSDS, etc
	Testing, industry or manuf. info, MSDS, etc. : None available : Forward to RCRA
	Testing, industry or manuf. info, MSDS, etc. : None available : Forward to RCRA
	Testing, industry or manuf. info, MSDS, etc. : None available : Forward to RCRA
4.	Did you see any leaking hazardous waste containers, drums, or tanks? No Yes G Forward to RCRA
	Describe:
5.	Did you see any signs of spills or releases (e.g., dead or stressed vegetation, stains, discoloration)? No \(\subseteq \text{ Yes} \subseteq \text{ Forward to RCRA} \)
	Describe: facility soil + groundwater being remediated (Get Photo)
6.	Did you see any chemical or waste handling practices that concern you (access to children/public)? No Yes U Forward to RCR4 &
	EPCRA Describe:(Get Photo)
7.	Does the facility have any past or present underground petroleum product or hazardous material tanks? No Yes Very Forward to UST
8.	Does the facility have any underground fuel tanks for emergency generators? No Yes D Forward to UST
	PILL PREVENTION CONTROL AND COUNTERMEASURE PLAN (SPCC)
I.	Does the facility have any aboveground oil tanks (petroleum, synthetic, animal, fish, vegetable), with an aggregate volume >1,320 gallons? No ☑ (stop) Yes ☐ - Does the facility have a certified SPCC Plan? Yes ☐ No ☐ Forward to SPCC
	If yes, are there secondary containment systems for the tanks? Yes \(\sigma \) No \(\sigma \) Forward to SPCC
	If yes, are any tanks <u>leaking</u> where oil could reach waters of the State or U.S.? No \(\text{No } \text{Yes} \(\(\text{Get Photo} \) Forward to SPCC
,	
EN	VIRONMENTAL MANAGEMENT SYSTEMS (EMS) closed facility going thru remediation of MDNR
1.	Does your facility have an EMS? No ☐ Yes ☐
2.	Is the facility's EMS ISO 14001 certified? No □ Yes □
* P	LEASE TAKE <u>PHOTOS</u> TO DOCUMENT POTENTIAL PROBLEMS
	reion 08 23 05a GRAY SHADED AREAS INDICATE ITEMS VOLUMEED TO LOOK FOR DURING VISUAL INSPECTION



Northrop Grumman - Springfield, MO Inspection Forms

Dedriel Newsome to: Saylor, Adam E.

11/22/2010 02:47 PM

Hi Adam,

Attached are the inspection forms to be signed. Please give me a call to discuss when you receive them.





Doc of Recpt.pdf Conf Notice.pdf

Thanks, **Dedriel Newsome** US E. P. A., Region 7 901 North 5th Street Kansas City, KS 66101 (913)551-7049 (913)551-9049 (fax)

"Saylor, Adam E."

Ms. Newsome, Please find the attached LDR form for Uniform Hazardous Wast...

11/19/2010 12:01:54 PM

From:

"Saylor, Adam E." <Adam.Saylor@ngc.com>

To:

Dedriel Newsome/R7/USEPA/US@EPA

Date:

11/19/2010 12:01 PM

Subject:

Northrop Grumman - Springfield, MO

Ms. Newsome,

Please find the attached LDR form for Uniform Hazardous Waste Manifest 002991964FLE that you requested. I look forward to speaking with you on Monday.

Regards,

Adam

<<002991964FLE Signed LDR.TIF>>

Adam Saylor, CHMM

Sr. Environmental Engineer

Northrop Grumman Electronic Systems

Phone: (410) 993-7080

Fax: (410) 981-1946

Cellular: (410) 570-1030

adam.saylor@ngc.com[attachment "002991964FLE Signed LDR.TIF" deleted by Dedriel Newsome/R7/USEPA/US]

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY CONFIDENTIALITY NOTICE

Facility Name
Northrop Grymman
Facility Address
Springfield, MO
Inspector (print)
Dedriel Newsome
U.S. EPA, Region VII, 901 N. 5th St., Kansas City, KS 66101
1 11/16/10
The United States Environmental Protection Agency (EPA) is obligated, under the Freedom of Information Act, to release information collected during inspections to persons who submit requests for that information. The Freedom of Information Act does, however, have provisions that allow EPA to withhold certain confidential business information from public disclosure. To claim protection for information gathered during this inspection you must request that the information be held CONFIDENTIAL and substantiate your claim in writing by demonstrating that the information meets the requirements in 40 CFR 2, Subpart B. The following criteria in Subpart B must be met:
 Your company has taken measures to protect the confidentiality of the information, and it intends to continue to take such measures.
2. No statute specifically requires disclosure of the information.
3. Disclosure of the information would cause substantial harm to your company's competitive position.
Information that you claim confidential will be held as such pending a determination of applicability by EPA.
I have received this Notice and <u>DO NOT</u> want to make a claim of confidentiality at this time.
Facility Representative Provided Notice (print) Signature/Date
I have received this Notice and <u>DO</u> want to make a claim of confidentiality.
Facility Representative Provided Notice (print) Signature/Date
Information for which confidential treatment is requested;

(Rev:1/19/00)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY CONFIDENTIALITY NOTICE

Facility Name
Northrop Grymman
Facility Address
Springfield, MO
Inspector (print)
Dedriel Newsome
U.S. EPA, Region VII, 901 N. 5th St., Kansas City, KS 66101 Date
Date 1/18/10
The United States Environmental Protection Agency (EPA) is obligated, under the Freedom of Information Act,
to release information collected during inspections to persons who submit requests for that information. The Freedom
of Information Act does, however, have provisions that allow EPA to withhold certain confidential business information from public disclosure. To claim protection for information gathered during this inspection you must
request that the information be held CONFIDENTIAL and substantiate your claim in writing by demonstrating that
the information meets the requirements in 40 CFR 2, Subpart B. The following criteria in Subpart B must be met:
1
1. Your company has taken measures to protect the confidentiality of the information, and it intends to continue to take such measures.
2. No statute specifically requires disclosure of the information.
3. Disclosure of the information would cause substantial harm to your company's competitive position.
Information that you claim confidential will be held as such pending a determination of applicability by EPA.
mioritation that you claim confidential will be field as such perfamily a determination of appreciously by 2.11.
I have received this Notice and DO NOT want to make a claim of confidentiality at this time.
Facility Representative Provided Notice (print) Signature/Date
I have received this Notice and DO want to make a claim of confidentiality.
Facility Representative Provided Notice (print) Signature/Date
Information for which confidential treatment is requested;
· · · · · · · · · · · · · · · · · · ·

(Rev:1/19/00)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY RECEIPT FOR DOCUMENTS AND SAMPLES

Northrup Govmman Facility Address Springfield, MO
Documents Collected? YES (list below) NO
Samples Collected? YES (list below) NO Split Samples: YES NO
Documents/Samples were: 1)Received no charge 2)Borrowed 3)Purchased
Amount Paid: \$ Method: Cash Voucher To Be Billed
The documents and samples described below were collected in connection with the administration and enforcement of the applicable statute under which the information is obtained.
Receipt for the document(s) and/or sample(s) described below is hereby acknowledged:
Manifest Documents (alepsa) Facility Layout (Ipgs)
racitly by by
Facility Representative (print) Signature/Date
Inspector (print) Dedriel Newsome Weshiel Newsome 11/18/10
U.S. EPA, Region VII, 901 N. 5th Street, Kansas City, KS 66101

(rev:1/20/93)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY RECEIPT FOR DOCUMENTS AND SAMPLES

Northrup Govmman
Facility Address Springfield, MO
Documents Collected? YES / (list below) NO
Samples Collected? YES (list below) NO Split Samples: YES NO
Documents/Samples were: 1)Received no charge 2)Borrowed 3)Purchased
Amount Paid: \$ Method: Cash_ Voucher_ To Be Billed
The documents and samples described below were collected in connection with the administration and enforcement of the applicable statute under which the information is obtained.
Receipt for the document(s) and/or sample(s) described below is hereby acknowledged:
Mani-fest Documents (26 pgs)
Facility Layout (1pg)
Facility Representative (print) Signature/Date
Inspector (print) Dedriel Neusome Werlief Newsome 11/18/10
U.S. EPA, Region VII, 901 N. 5th Street, Kansas City, KS 66101

(rev:1/20/93)



RE: EXTERNAL:Northrop Grumman - Springfield, MO Inspection Forms Saylor, Adam E. to: Dedriel Newsome

11/23/2010 11:49 AM Show Details

4 Attachments

Soil Core Analytical.pdf Consolidation Sediment Analytical.pdf Receipt of Documents.pdf Confidentiality Notice.pdf

Dedriel,

Please find the attached analytical you requested for the consolidation sediment drum and the Sanitary Lagoon soil cores drum. As discussed onsite with Stantec Consulting, generator knowledge was utilized as the basis for the non-hazardous waste classification for both drums. Sampling data has been collected from various sampling points during site investigations in both the consolidation and Sanitary Lagoon areas. A review of the cumulative data gathered over time during these sampling events provided Northrop Grumman the ability to make the non-hazardous waste determinations via generator knowledge. Confirmation sampling of the drummed waste has subsequently been completed and the attached analytical verifies that the non-hazardous waste classification based on generator knowledge is correct.

Also included are signed copies of the Confidentiality Notice and Receipt for Documents that you requested.

Please contact me if you need any further information or I can answer any questions.

Thank You

Adam

Adam Saylor, CHMM Sr. Environmental Engineer Northrop Grumman Electronic Systems Phone: (410) 993-7080 Fax: (410) 981-1946 Cellular: (410) 570-1030 adam.saylor@ngc.com

----Original Message----

From: Newsome.Dedriel@epamail.epa.gov [mailto:Newsome.Dedriel@epamail.epa.gov]

Sent: Monday, November 22, 2010 3:47 PM

To: Saylor, Adam E.

Subject: EXTERNAL:Northrop Grumman - Springfield, MO Inspection Forms

Attached are the inspection forms to be signed. Please give me a call to discuss when you receive Hi Adam,

(See attached file: Doc of Recpt.pdf)(See attached file: Conf Notice.pdf)

Thanks, Dedriel Newsome US E. P. A., Region 7 901 North 5th Street Kansas City, KS 66101 (913)551-7049 (913)551-9049 (fax)

From:

"Saylor, Adam E."

ATTACHMENT 3 Page 1 of 10

<Adam.Saylor@ngc.com>

To:

Dedriel Newsome/R7/USEPA/US@EPA

Date:

11/19/2010 12:01

PM

Subject:

Northrop Grumman - Springfield,

Ms. Newsome,

Please find the attached LDR form for Uniform Hazardous Waste Manifest 002991964FLE that you requested. I look forward to speaking with you on Monday.

Regards,

Adam

<<002991964FLE Signed LDR.TIF>>

Adam Saylor, CHMM

Sr. Environmental Engineer

Northrop Grumman Electronic Systems

Phone: (410) 993-7080

Fax: (410) 981-1946

Cellular: (410) 570-1030

adam.saylor@ngc.com[attachment "002991964FLE Signed LDR.TIF" deleted by Dedriel Newsome/R7/USEPA/US]

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY CONFIDENTIALITY NOTICE

Facility Name
Northrop Grymman Guidance and Electronics Company Inc. Facility Address
Springfield, MO
Inspector (print)
Dedrie Newsome
U.S. EPA, Region VII, 901 N. 5th St., Kansas City, KS 66101 Date VI 8
The United States Environmental Protection Agency (EPA) is obligated, under the Freedom of Information Act, to release information collected during inspections to persons who submit requests for that information. The Freedom of Information Act does, however, have provisions that allow EPA to withhold certain confidential business information from public disclosure. To claim protection for information gathered during this inspection you must request that the information be held CONFIDENTIAL and <u>substantiate</u> your claim in writing by demonstrating that the information meets the requirements in 40 CFR 2, Subpart B. The following criteria in Subpart B must be met:
 Your company has taken measures to protect the confidentiality of the information, and it intends to continue to take such measures.
2. No statute specifically requires disclosure of the information.
3. Disclosure of the information would cause substantial harm to your company's competitive position.
Information that you claim confidential will be held as such pending a determination of applicability by EPA.
I have received this Notice and <u>DO NOT</u> want to make a claim of confidentiality at this time.
Facility Representative Provided Notice (print) Signature/Date
Adam Saylor al se 11/23/10
I have received this Notice and <u>DO</u> want to make a claim of confidentiality.
Facility Representative Provided Notice (print) Signature/Date
Information for which confidential treatment is requested;
(Rev:1/19/00)

ATTACHMENT 3 Page 3 of 10

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY RECEIPT FOR DOCUMENTS AND SAMPLES

North rup Governman Guidance and Electionics Company Inc. Facility Address Spring field, MO Documents Collected? YES V (list below) NO
Samples Collected? YES (list below) NO Split Samples: YES NO
Documents/Samples were: 1)Received no charge 2)Borrowed 3)Purchased
Amount Paid: \$ Method: Cash Voucher To Be Billed
The documents and samples described below were collected in connection with the administration and enforcement of the applicable statute under which the information is obtained.
我来说我就说话话,我们也没有我们的说话,我们也没有我们的,我们也没有我们的,我们也没有我们的,我们也没有我们的,我们也没有我们的,我们也会会会会会会会会会会会会 *************************
Receipt for the document(s) and/or sample(s) described below is hereby acknowledged:
Manifest Documents (depa)
Manifest Documents (26 pgs) Facility Layout (1pgs)
Acalytical for Waite Determination (4 pages)
Facility Representative (print) Signature/Date
Adam Saylor and a 11/23/10 Inspector (print) Signature/Date
Dedriel Newsome Dedriel Newsome 11/18/10
U.S. EPA, Region VII, 901 N. 5th Street, Kansas City, KS 66101
(rev: 1/20/93)

TEKLAB, INC.

ENVIRONMENTAL TESTING LABORATORY

TEL: 618-344-1004

FAX: 618-344-1005

LABORATORY RESULTS

Client: Stantec

Client Project: Northrop Grumman Springfield MO

WorkOrder: 10110874

Client Sample ID: Sanitary Lagoon Soil Cores
Collection Date: 11/18/2010 1:25:00 PM

Lab ID: 10110874-002 **Report Date:** 19-Nov-10

Matrix: SOLID

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed Ana	lyst
SW-846 1311, 3010A, 6010B, MET	ALS IN TCLP EXT	RACT B	Y ICP					
Arsenic	NELAP	0.250		< 0.250	mg/L	. 1	11/19/2010 3:10:23 PM	JMW
Barium	NELAP	0.0500		0.527	mg/L	1	11/19/2010 3:10:23 PM	JMW
Cadmium	NELAP	0.0200		< 0.0200	mg/L	1	11/19/2010 3:10:23 PM	JMW
Chromium	NELAP	0.100		< 0.100	mg/L	1	11/19/2010 3:10:23 PM	JMW
Lead	NELAP	0.400		< 0.400	mg/L	1	11/19/2010 3:10:23 PM	JMW
Selenium	NELAP	0.500		< 0.500	mg/L	1	11/19/2010 3:10:23 PM	JMW
Silver	NELAP	0.100		< 0.100	mg/L	1	11/19/2010 3:10:23 PM	JMW
SW-846 1311, 5030, 8260B, VOLA	TILE ORGANIC C	OMPOU	NDS IN TO	CLP EXTRAC	T BY GC/N	<u>IS</u>		
1,1-Dichloroethene	NELAP	0.500		ND	mg/L	100	11/19/2010 3:10:00 PM	CCF
1,2-Dichloroethane	NELAP	0.500		ND	mg/L	100	11/19/2010 3:10:00 PM	CCF
1,4-Dichlorobenzene	NELAP	0.500		ND	mg/L	100	11/19/2010 3:10:00 PM	CCF
2-Butanone	NELAP	5.00		ND	mg/L	100	11/19/2010 3:10:00 PM	CCF
Benzene	NELAP	0.200		ND	mg/L	100	11/19/2010 3:10:00 PM	CCF
Carbon tetrachloride	NELAP	0.500		ND	mg/L	100	11/19/2010 3:10:00 PM	CCF
Chlorobenzene	NELAP	0.500		ND	mg/L	100	11/19/2010 3:10:00 PM	CCF
Chloroform	NELAP	0.500		ND	mg/L	100	11/19/2010 3:10:00 PM	CCF
Tetrachloroethene	NELAP	0.500		ND	mg/L	100	11/19/2010 3:10:00 PM	CCF
Trichloroethene	NELAP	0.500		ND	mg/L	100	11/19/2010 3:10:00 PM	CCF
Vinyl chloride	NELAP	0.200		ND	mg/L	100	11/19/2010 3:10:00 PM	CCF
Surr: 1,2-Dichloroethane-d4	7	74.7-129		96.1	%REC	100	11/19/2010 3:10:00 PM	CCF
Surr: 4-Bromofluorobenzene		86-119		104.4	%REC	100	11/19/2010 3:10:00 PM	CCF
Surr: Dibromofluoromethane	8	31.7-123		106.2	%REC	100	11/19/2010 3:10:00 PM	CCF
Surr: Toluene-d8	8	34.3-114		94.4	%REC	100	11/19/2010 3:10:00 PM	CCF
SW-846 1311, 7470A IN TCLP EX	XTRACT							
Mercury	NELAP	0.00020		< 0.00020	mg/L	1	11/19/2010	MEK

Sample Narrative

TEKLAB, INC.

5445 HORSESHOE LAKE ROAD COLLINSVILLE, ILLINOIS 62234

ENVIRONMENTAL TESTING LABORATORY TEL: 618-344-1004 FAX: 618-344-1005 **RECEIVING CHECK LIST** Client: Stantec Project: Northrop Grumman Springfield MO Lab Order: 10110874 Report Date: 19-Nov-10 Carrier: Greg Michael Received By: TWM Elizabeth a Hurley Completed by: Reviewed by: On: On: 18-Nov-10 19-Nov-10 Timothy W. Mathis Elizabeth A. Hurley Pages to follow: Extra pages included 0 Chain of custody Shipping container/cooler in good condition? Yes No _ Not Present Temp °C 1.2 Type of thermal preservation? Ice 🗸 None Blue Ice Dry Ice Chain of custody present? Yes No Chain of custody signed when relinquished and received? ~ Yes No Chain of custody agrees with sample labels? **V** No 🗔 Samples in proper container/bottle? **V** Yes No 🗔 Sample containers intact? No 🗌 Yes Sufficient sample volume for indicated test? No 🗆 All samples received within holding time? No Yes NA 🗸 Reported field parameters measured: Field Lab Container/Temp Blank temperature in compliance? When thermal preservation is required, samples are compliant with a temperature between 0.1°C - 6.0°C, or when samples are received on ice the same day as collected. Water - vials have zero headspace? No VOA vials Water - TOX containers have zero headspace? Yes No 🗌 No TOX containers Water - pH acceptable upon receipt? Yes 🗸 No 🗌 Any No responses must be detailed below or on the COC.

ATTACHMENT 3 Page 7 of 10

CHAIN OF CUSTODY

pg. _ \ of _ \ Work Order # 10110874

TEKLAB, INC. 54	45 Horseshoe La	ake Road ~ Coll	linsville,	, IL 62234 ~ F	Phone: (618) 344-1004 ~	Fax: (618) 344-1005
			Sa	mples on: 🌠 l	ce 🗆 Blue Ice 🗀 No Ice	<u>1.Z</u> ·c
Address: 3223 S. M.	ADONBROOK RE	0	Pre	eserved in: 🗆	Lab □ Field <u>FOR I</u>	AB USE ONLY
City / State / Zip: SPM NUFULO	14 62711		La	b Notes:		2 1 1
Contact: GAEG MICHAEL	Phone: 217/	698-7247 XII	2 *	SRURA D	er Greg Michael	994 11 19 10
E-Mail: greg, michael@ stantec	Fax:		Ce	omments:	O	
 Are these samples known to be involved in lit Are these samples known to be hazardous? Are there any required reporting limits to be no limits in comment section. 	IIYAS DENO		(00000000	1 [)AY	
Project Name / Number	Sample Co	llector's Name		MATRIX	INDICATE ANA	LYSIS REQUESTED
NURTHOP GLUMMIN SPLINGFRED MO	GREG MICH	1		Vater	*	
Results Requested Standard A1-2 Day (100% Surcharge)	illing Instructions			y pr	1)14	
☐ Other ☐ 3 Day (50% Surcharge)	Date/Time Sampled	UNPRES HNO3 NaOH H2SO4 HCL	NaHSO4	Water Drinking Water Soil Sludge Sp. Waste	27 72	
Lab Use Only Sample Identification			ZO			
101100 For Consocilation	11/18/10 1340	2		X		
10110874 CONSOLIPATION SOUMENT SANITORY LAGOON SOLIPATION SOLIPATION SOLIPATION SOLIPATION	11/18/10 1325	8		X	* 1	
34,6 10.12						
			+++			
		+++++	+++			
			+	-+++-		
						Date / Time
Relinquished By ,	0	Date / Time		000	Received By	
GREG MICHAEL Hingelle	le 11/18/	10 //	16	Contil	you / los	11.18:10 1815
3	·		-		0	
				1		

The individual signing this agreement on behalf of client acknowledges that he/she has read and understands the terms and conditions of this agreement, on the reverse side, and that he/she has the authority to sign on behalf of client.

TEKLAB, INC.

ENVIRONMENTAL TESTING LABORATORY

TEL: 618-344-1004

FAX: 618-344-1005

LABORATORY RESULTS

Client: Stantec

Client Project: Northrop Grumman Springfield MO

WorkOrder: 10110874

Report Date: 19-Nov-10

Client Sample ID: Consolidation Sediment

Lab ID: 10110874-001

Collection Date: 11/18/2010 1:40:00 PM

Matrix: SOLID

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed Ana	alyst
SW-846 1311, 3010A, 6010B, META	ALS IN TCLP EXT	RACT B	Y ICP					
Arsenic	NELAP	0.250		< 0.250	mg/L	1	11/19/2010 3:48:17 PM	JMW
Barium	NELAP	0.0500		1.02	mg/L	1	11/19/2010 3:48:17 PM	JMW
Cadmium	NELAP	0.0200		< 0.0200	mg/L	1	11/19/2010 3:48:17 PM	JMW
Chromium	NELAP	0.100		0.123	mg/L	1	11/19/2010 3:48:17 PM	JMW
Lead	NELAP	0.400		< 0.400	mg/L	1	11/19/2010 3:48:17 PM	JMW
Selenium	NELAP	0.500		< 0.500	mg/L	1	11/19/2010 3:48:17 PM	JMW
Silver	NELAP	0.100		< 0.100	mg/L	1	11/19/2010 3:48:17 PM	JMW
SW-846 1311, 5030, 8260B, VOLAT	TILE ORGANIC C	OMPOU!	NDS IN TO	CLP EXTRAC	ΓBY GC/N	MS		
1,1-Dichloroethene	NELAP	0.500		ND	mg/L	100	11/19/2010 2:12:00 PM	CCF
1,2-Dichloroethane	NELAP	0.500		ND	mg/L	100	11/19/2010 2:12:00 PM	CCF
1,4-Dichlorobenzene	NELAP	0.500		ND	mg/L	100	11/19/2010 2:12:00 PM	CCF
2-Butanone	NELAP	5.00		ND	mg/L	100	11/19/2010 2:12:00 PM	CCF
Benzene	NELAP	0.200		ND	mg/L	100	11/19/2010 2:12:00 PM	CCF
Carbon tetrachloride	NELAP	0.500		ND	mg/L	100	11/19/2010 2:12:00 PM	CCF
Chlorobenzene	NELAP	0.500		ND	mg/L	100	11/19/2010 2:12:00 PM	CCF
Chloroform	NELAP	0.500		ND	mg/L	100	11/19/2010 2:12:00 PM	CCF
Tetrachloroethene	NELAP	0.500		ND	mg/L	100	11/19/2010 2:12:00 PM	CCF
Trichloroethene	NELAP	0.500		ND	mg/L	100	11/19/2010 2:12:00 PM	CCF
Vinyl chloride	NELAP	0.200		ND	mg/L	100	11/19/2010 2:12:00 PM	CCF
Surr: 1,2-Dichloroethane-d4	1	74.7-129		95.4	%REC	100	11/19/2010 2:12:00 PM	CCF
Surr: 4-Bromofluorobenzene		86-119		102.5	%REC	100	11/19/2010 2:12:00 PM	CCF
Surr: Dibromofluoromethane	8	31.7-123		105.7	%REC	100	11/19/2010 2:12:00 PM	CCF
Surr: Toluene-d8	1	84.3-114		96.1	%REC	100	11/19/2010 2:12:00 PM	CCF
SW-846 1311, 7470A IN TCLP EX	TRACT							
Mercury		0.00020		< 0.00020	mg/L	1	11/19/2010	MEK

Sample Narrative

TEKLAB, INC.

5445 HORSESHOE LAKE ROAD COLLINSVILLE, ILLINOIS 62234

ENVIRONMENTAL TESTING LABORATORY TEL: 618-344-1004 FAX: 618-344-1005 RECEIVING CHECK LIST Client: Stantec Project: Northrop Grumman Springfield MO Lab Order: 10110874 Report Date: 19-Nov-10 Carrier: Greg Michael Received By: TWM Elizabeth a Hurley Reviewed by: Completed by: On: On: 18-Nov-10 19-Nov-10 Timothy W. Mathis Elizabeth A. Hurley Pages to follow: Chain of custody Extra pages included 0 Yes 🗸 Shipping container/cooler in good condition? No 🗌 Not Present Temp °C 1.2 Ice 🗸 Type of thermal preservation? None Blue Ice **V** Chain of custody present? Yes No Chain of custody signed when relinquished and received? Yes **V** No Chain of custody agrees with sample labels? Yes No No 🗌 Samples in proper container/bottle? Yes No 🗌 Sample containers intact? Sufficient sample volume for indicated test? Yes No All samples received within holding time? No 🗌 Reported field parameters measured: Field Lab NA 🗸 Container/Temp Blank temperature in compliance? Yes 🗸 No When thermal preservation is required, samples are compliant with a temperature between 0.1°C - 6.0°C, or when samples are received on ice the same day as collected. Water - vials have zero headspace? Yes No No VOA vials Water - TOX containers have zero headspace? No 🗌 No TOX containers Yes Yes 🗸 Water - pH acceptable upon receipt? No 🗌 Any No responses must be detailed below or on the COC.

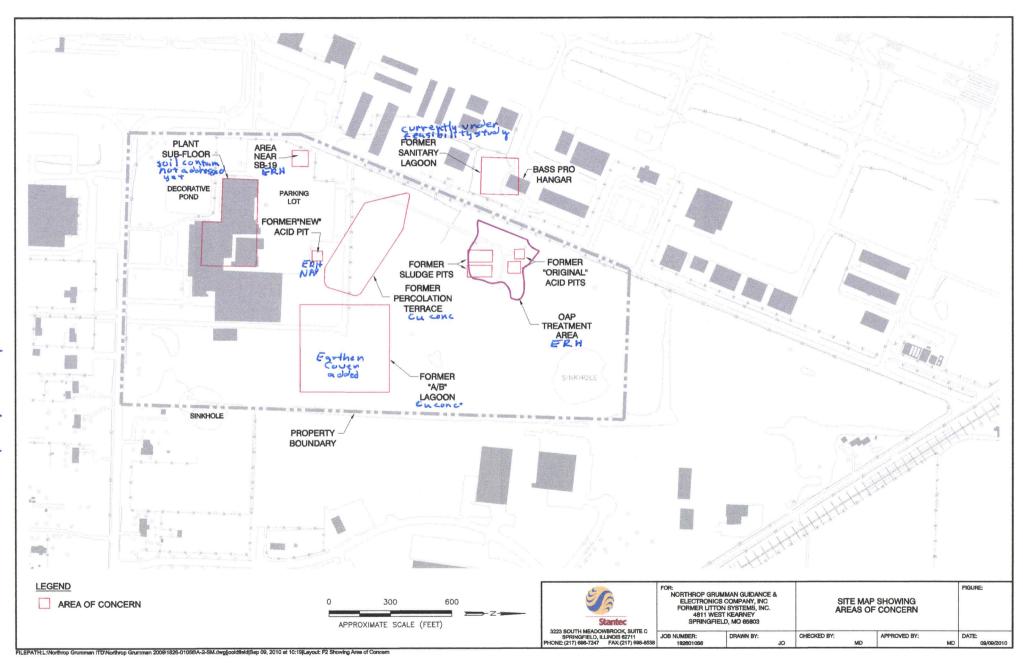
ATTACHMENT 3 Page 10 of 10

CHAIN OF CUSTODY

pg	i	of_	1	Work	Order#	10110874
pg	1	of_	1	Work	Order#	10110874

TEKLAB, INC. 5445 Horseshoe Lake Road ~ Collinsville, IL 62234 ~ Phone: (618) 344-1004 ~ Fax: (618) 344-1005

Client: STANTEL Consulting						Samples on: police □ Blue ice □ No ice <u>/-/-</u> °C																		
Address: 3223 S. M#	400-BROOK R	0				_		Pre:	erv	ed	in:		Lab	1	□ Field	j	OR	LAB	USE	ONL	Y			
City/State/Zip: SAYNUFULD	16 62711							Lab	No	les:				o										
Contact: GREG MICHARL	Phone: 217/	698	-7	247	KI	12		*	812	CK	14	٥	ex_	04	n M	cha	u.	9	94	ш¥	1 10			
E-Mail: greg. michael@ stantec	ion Fax:							Соп	ıme	nts					0									
							,		á		88	W 30		ET 786	e e									
Are these samples known to be involved in litiAre these samples known to be hazardous?	igation? If yes, a surcha □ Yes M No	rge wil	app	oly. □	Yes	12	No								V									
 Are there any required reporting limits to be n 	net on the requested and	lysis?	If ye	s, pl	ease	pro	vide		è			Maes												
limits in comment section. ☐ Yes	Sample Co	lecto	r'e	Nam	10	-	8		MA	TRI	X				INDIC	ATE	ANA	LYS	IS RE	QUE	STE	D		
Northop Glammer	20			ITAIII	ie			\vdash	T					X		<u> </u>								
SPRINGERED MO	GREG MICH	_	-				m.	1	ate					77										
Results Requested Standard A1-2 Day (100% Surcharge)	lling Instructions							-	N B			ste	17	14		1				1 1				
☐ Other ☐ 3 Day (50% Surcharge)		W .	, E	0		되	<u>8</u> 0	Water	Drinking Water	_	Sludge	Wa	400	A P										
Lab Use Only Sample Identification	Date/Time Sampled	UNPRES	Nan	H2S	모	Me	NaHSO4 Other	×	D	Soil	SIL	Sp.	7	5										
	11/18/10 1340	2						Г		X			X	X										
OOZ SANITON LAGON	11/18/10 1325	4	\top		П			Т		X			7	X				-						
SELL COMPA	7.0/10 19 ==	1/	\top	\top	\Box	\neg		T	T		П													-
			+	+	\vdash	_	_	+	+				_			1								
		\vdash	+	+	\vdash	\dashv	+	+	+-	-									-	\vdash				
		\vdash	+	+	Н		-	+	\perp	-	H	_		-	\vdash	+	+	\vdash	\vdash	-				
		\vdash	+	+			+	#	1	\vdash			_	-		+	-	┼	\vdash	-		-	-	-
			+	#			_	╄	\perp	_	\square			-		+-	-	\vdash	-	-		-	-	├
																	_	↓_				_	ـــــ	
				T																			L	
								Τ																
Relinquished By ,	^	Dat	e / 1	Time				1	_	-	1	1	Rec	eiyec	Ву					Dat	e/T	ime		
Grea michael tingelin	le 11/18/	10			18	16	~	\top		70	u t	Tu	sh	10	loto				1.15	8:10)	181	5	
4	''							- 1				6	1		1									
								\top																
								\neg		-														
										-		-	THE RESERVE OF THE PERSON NAMED IN	OR THE CHARLES AND				and the same of the same of	-					



Signature

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

EPA Form 8700-22 (Rev. 3-05) Prévious editions are obsolete.

14.3

11 600

140 J. 190 Berlin . 1997

ATTACHMENT __ Page __



Land Disposal Restriction Notification Form

Page: 1 of 1

Printed Date: Sep 23, 2009 MANIFEST INFORMATION Manifest Tracking Info. Generator: Northrop Grumman Guidance and Electronics C 002991964FLE 4811 W Kearney Address: Springfield, MO 65803 Sales Order No: DK2512726 EPA ID #: MOD007152903 LINE ITEM INFORMATION LDR Disposal Category Treatability Group: Line Item: Page No: Profile No: NON-WASTEWATER 4 (Meets LDR Standards) CH392720B **EPA Waste SubCategory EPA Waste Code** F002 NONE Applies to Certification Manifest Line **Items** I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies ith the treatment standards specified in 40 CFR part 268 subpart D. I believe that the information I submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment. Waste analysis data, where available, is attached. Signature: **Print Name** Title: Date:



Northrop Grumman - Springfield, MO Saylor, Adam E. to: Dedriel Newsome 11/19/2010 12:01 PM Show Details

History: This message has been replied to.

1 Attachment



002991964FLE Signed LDR.TIF

Ms. Newsome,

Please find the attached LDR form for Uniform Hazardous Waste Manifest 002991964FLE that you requested. I look forward to speaking with you on Monday.

Regards,

Adam

<<002991964FLE Signed LDR.TIF>>

Adam Saylor, CHMM

Sr. Environmental Engineer

Northrop Grumman Electronic Systems

Phone: (410) 993-7080

Fax: (410) 981-1946

Cellular: (410) 570-1030

adam.saylor@ngc.com



Land Disposal Restriction Notification Form

Page: 1 of 1

Printed Date :Sep 23, 2009

ENVIRO	NMENTA	. SERVICES°					
MANIFE	ST INFO	RMATION				2 1 4 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	
G	enerator:	Northrop Gru	mman Guidance	and Electronics C		Manifest Tracking I	nfo.
in Nag	Address:	4811 W Kear Springfield,M				002991964FLE	
	EPA ID #:	MODO07	152903		Sal	es Order No: DK251272	26
LINE IT	EM INFO	RMATION					
Line Iter	m: P	age No:	Profile No:	Treatability Group):	LDR Disposal Category	
1.	1	:	CH392720B	NON-WASTEWA	TER	4 (Meets LDR Standard	s)
EPA W	aste Code		L		EPA Wa	ste SubCategory	
F002					NONE	ee = e = e = e = e = e = e = e = e = e	
	·		<u>Ce</u>	rtification			Applies to Manifest Line Items
analysis with the submitted	and testir treatment ed is true,	ng or through kn standards spec accurate, and c	owledge of the wified in 40 CFR pomplete. I am av	part 268 subpart D.	certification believe tha	that the waste complies	1.
Waste a	analysis da	ata, where availa	able, is attached.				
Signat	ture :	2334	181/3	Print Nan	ne	Josiah H. Ball	
Title:		Geologi	able is attached.	Date :	٠	9-28-69	

EPA Form 8700-22 (Rev. 3-05) Preyious editions are obsciete.

Clean Harbors has the appropriate permits for and will accept the waste the generator is shipping. ATTACHMENT 5 Page 1

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

20. Designated Facility Owner or Operator: Certification of receipt of pazardous materials covered by the manifest except as motern 18a

H132

DK2285049 Please print or type. (Form designed for use on elife (12-pitch) typewriter.) 5C MA PPW 2/26/2009 Form Approved, OMB No. 2050-0039 1. Generator ID Number UNIFORM HAZARDOUS 2. Page 1 of 3. Emergency Response Phone 4. Manifest Tracking Number WASTE MANIFEST 48001 483 374 R 0011912 Generator's Name and Mailing Address Northrop Grunnman Guidance and Electronics Company VALL US KEARNOW 1811 W Kearney Springflald, MO 68800 Generator's Phone: 41792999311 6. Transporter 1 Company Name ATTICKaren Kolan Clean Narbors Environmental Services Inc. MAD039322250 7. Transporter 2 Company Name U.S. EPA ID Number Cloun Horbors Environmental MAD039322250 U.S. EFA ID Number Clean Harbors Grassy Mountain LLC 3 Miles Fast 7 Miles worth of Knolls Grantsville, UT 84079 UTD391301748 4359546900 Feditivis Phone: \$5, U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, 10. Containers 11. Total 12. Unit and Packing Group (if any;) 13. Waste Coccs HE Ma. Quantity MAN'S Type NA3077, HAZARDOUS WASTE, SOLID, N.O.S., F002 F003 F005 ERATOR STOLUENE, TRICHLOROETHYLENEY, S. PG III 011 04950 DU GEN 14. Special Handling Instructions and Additional Information GENERATOR'S CERTIFICATION: Thereby declare that the contents of this consignment are fully and accurately cosmided above by the proper stypping man'e, and are classified, packaged, marked and labeled/placerded, and are in all respects in proper condition for transport according to applicable informational and national governmental regulations. If expert shipment and I aim like Primary Exporter. I certify that the contents of this consignment conform to the terms of the attached EPA Aconomiedgment of Opision. I cortify that the weathern micelion statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) if I am a small quantity generator) is Generator's/Offeror's Printed: yped Name MURTHUR CHEIMING WHEL MILHER ON BELLEVE OF ALLONGE & ELECTION 16. International Shipments Port of entralexit; Export from U.S. Transporter algrature (for caports only): Date leaving J.S. 17. Thereporter Adenowlogoment of Roccipt of Materials Transporter 1 Printerly upod Kamo Transporter 2 Printer/Typed James 18. Discrepancy 18a. Discresancy Indication Space Cuarthy Residue Ful Rejection Partial Rejection Manifest Reference Number: 18b. Alternate Facility (or Generator) U.S. EPA IC Number Facility's Phone: DESIGNATED 180 Signature of Albernate Facility (or Generator) Merally DEY 13. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment disposal, and recycling systems) 20. Designated Facility Owner or Operator: Certification of receipt of hezardous macarials severed by the manifest except as noted in from 189 Printed Typed Na

Clean Harbors has the appropriate permits for and will accept the waste the generalor is shipping.

EPA Form 3700-22 (Rev. 3-05). Previous aditions are obsciete

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

Ple	ase pr	rint or type. (Form designed for use on alite (12-prich) typewriter.)				Ênm	Approved. OMB No. 2050-0039
1	IINI	FORM HAZARIYALIS WASTE MANIEERT 2° Generator ID Number	22. Page	23. Manif	est Tracking Nu	unber	
П	L.,	(Continuation Sheet) MOD 007159903	1a		00119	1128	3 FLE
	24. 0	(Continuation Sheet) MOD DB7152903 Jerenalor's Name Northrop Grumman Guidance and Ele	ctronies C	ombuhi	1		
11				17			
II	75	3		ALLEGO POR TOTAL	U.S. EPA ID	Number	
П	20.	Transporer Company Name 5mith 5vstems			INED	986	382133
П	25. 1	Transporter Company Name (1)	. (U.S. EPA /D	Mumber	
	_	Transporter 1 Company Name Clean Harbors Env. Sex	MANG		IMA	003R	33332
	27a. HM	275 U.S. DOT Description (including Proper Shipping Name, Hazerd Class, IC Number, and Packing Sroup (if any!)	28. Cortal	*WARRIED THE PARTY OF THE PARTY	29. Tota Quantity	30. Unit	31. Waste Codes
-	-		PID	Туре	Que luty	VICTOR.	1 1
						1 -	WW13 1
							TOTAL TO A TOTAL AND A TOTAL A
11						 -	
						1 -	
					Malla bayes and a second		
OR		\ In					
GENERATOR		PS.					
B							
9						1 +	
						-	
							7) 27 MA (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)
						1	
						-	
						-	
11							a a a a a a a a a a a a a a a a a a a
II		or and the second secon				1	
II							
Ш						-	
						+-+	
Ш							
	32. 5	pedia. Handling Instructions and Aeditional Information				96804	
-	33 T	ransporer 3 Acknowledprent of Recoalpt of Valerials		/	_	9.6	
TFR	Prinb	ed yped hame Signa:	*	1111	7	V SULLEN	March Day Year
TRANSPORTER		Divon Lugell	29-1/		10 Tab (10 th that a second		10/1/6/09
ANS	34. T	ransporter Accepted general of Receipt of Malagrats and Typer Name Accepted to Receipt of Malagrats	ure/)		4		Manth Day Year
TE	1110	Lovetha A. Simmi	the out	200	Lin	S	104/17/07
>	35. D	Хесиарапсу		البياك			5.1.5
L	-						
FAC							
TED	361 -	tazardous Waste Report Management Method Codes (i.e., codes for hazardous waste freetment, disposal, a	nd recycling systems;				
THA							
DESIGNATED FACILITY			A			1	
1=	1						ION STATE (IF REQUIRED)

P		int or type, (Form designed for use on effic (12-pitch) typewhiter.)				Form A	Approved CMB No. 2050-0039			
11	UNI	FORM HAZARDOUS WASTE MANIFEST 21. Garerato: ID Number	22. Page	23. Menil	lest Tracking Nu	mber	1			
	74.0	(Continuation Sheet) MODO 71529	03 3		2119	1978	21-1E			
	24. 6	Morthup Grunnan Guida	nce 48600	AL DY	ucs C	om	pany			
	U.S. EPA ID Number									
H		Clain than been	35		I MAD	039	322250			
		ransporter 4 Company Name 11100 Havious Env. 8	enicus in	L.	MA	VUD	13/11/10			
	27a.	27b. U.S. DCT Description, including Proper Snipping Name, Hazard Class, IO Number, and Packing Group (if any).	28, Centali No.	A service memory and	29. Total Quarroy	36 Unii Wt.Vol.	31. Waste Copes			
Ш			141.	Type	Guerry	1401.401.				
						-	P-, (6) 1 10 1 10 1 10 1 10 1 10 1 10 1 10 1			
		AR								
GENERATOR						-				
GEN										
-										
							day-i			
					Ì					
										
						-				
II										
II	.					ļ				
	32 Sc	nodemothal lenodibbA area enoignater! gni bhael leica			The second se					
OK.	33. To	ensporter Advisor expreent of Receipt of Materials	Signature	Outo	- 1		Muran Day Year			
TRANSPORTER	1.711.08	CHERRY Hand Sames Hamilton	PARA DEST		with		4 23 09			
MSP	34. Tr	inequater Advance edigment of Receipt of Materials								
TRA	Printe	nTyped Name COM II AVCV	az MOM ka	PONT			74/4/09			
7	35. Di:	scrupancy	Carried .	- VI			1 115 -15			
CILT										
DESIGNATED FACILITY							MAAA			
MATE	36. He	zardous Weste Report Management Method Godes (i.e., codes for hazardous weste troalmont, dis-	posal, and recycling systems)				- V sterom procedure appearance and appearance and appearance appearance appearance and appearance			
SIG										
L										
EP/	Form	B7DD-22A (Rev. 3-05) Provious aditions are absolute.	DESIG	SNATED F	ACILITY TO I	ESTINATI	ON STATE (IF REQUIRED)			

F	lease p	arint or type. (Form designed for use on elite (12-pitch) typewriter.)				Co.	m former of ANTSI PROGRAM
Management of Principles	UN	(Continuation Sheet) 21. Generator ID Number A OD 007/5 2-903	22. Page	23. Mar	ifest Tracking Nu	amber	m Approved, OMB No. 2050-0039
The state of the s	24.	IFORM HAZARDOUS WASTE MANIFEST 29. Generator 10 Number (Continuation Sheet) 29. Generator 10 Number (Continuation Sheet) 29. Generator 10 Number NO 007/52903	ectionic	s Con	npany		
	-						
opposite participation of	-	Transporter & Company Name Clean Harbors	others and an arrangement of the second		U.S. EPA ID	Number	9322250
	_	Transporter Company Name Clean Hourage	_	No to the second	U.S. EPA ID	Number (39322360
-	276. HM	27b. U.S. DOT Description (including Proper Shipping Name. Hazard Class, ID Number, and Packing Group (if anyl))	28. Contai	iners Type	29. Total Quantity	30. Unit Wt. Asi.	31. Waste Codes
	-				/		
				/			Parameter Landston
	,						
GENERATOR							
GENE							
Tankanplomen							
*		00					
-							
-							
ANT-DIA-BARBA							
				-			
STATEMENT SHOWING							
processing participation of							TO DOMESTIC GRANDOW WHILE HAVE LAND AND A LAND A LAND AND A LAND A LAND AND A LAND A LAND AND A LAND
Managar Managar Sangar	32. Sp	ecial Handing Instructions and Additional Information					
+	33. Tra	reporter Addrow edgment of Receipt of Materials			7		
JK IE	Printed	Typod Name Vic Wheeker Signature	1/1		all		Morth Day Yoar
ANSE		nsporter Acknowledgment of Receipt of Materials Typed Name					
¥	1	lares Carety	1	\supset	->		Nonth Jay Year
ACILLY ACILLY	30. UIS	metanty.				7	
O TAC				No. of Street, or other Persons	The Real Property lies and the least of the		
THE	38. H22	articus Waste Report Management Method Codes (i.s., ozdas for hazardous waste treatment, disposal, and rec)	rding systems;	·		1	
L L			1	Anna Maria Anno an Anno anno anno anno anno anno			
L PA	Form 8	700-22A (Rev. 3-05) Previous editions are obsolete.	DESIG	NATED FA	CILITY TO D	ESTINAT	ION STATE (IF REQUIRED)

Please	print or type. (Form designed for use on elite (12-plich) typewriter.)			F	
↑ U	NIFORM HAZARDOLIS WASTE MANIEFET 21. Generator 12 Number	3 22. Page	23. Manifest Teacking	Form Approved. OM	B Na. 2050-003
24	(Continuation Sheet) MDD071.5376	010	10011	1108 OF	仁
	Model Co	ummar	2		
1	a with rop of)			
1	Transporer T Company Name Clean Howhar	2)	I M	10 Number 140393 823	K2 6
26	Transporter . 10 Company Name		U.S. EPA	D Number	<u> 200 - </u>
271	27b. U.S. DOT Description (natuding Proper Shipping Neme, Hazard Class, ID Number,			7	
HM	and Packing Group (if any))	2E. Conl No.	Siners 26. Total Type Quantity	30. Unit W: /Vol. 31. Weste	Codes
					1/
				ARRESTO CONTRACTOR LA CONTRACT	/
T-managed in					\leftarrow
					AND THE PERSON NAMED IN
			_		
8					444
KAT					
GENERATOR					
$\ -$		A 1			
					4 P. California
-				B-	
				7	and the same of th
_				Man a fidda la badderna a a a a a a a a a a a a a a a a a a	
		1			
					-
	/		Oseran de la companya del companya de la companya del companya de la companya del la companya de		
7	40.4				
32.8	vacial Handling Instructions and Adalitional Information				
					#British(B)
					Tana Cons
33 Tr	anspoder Acinowledgment of Receipt of Materials				
Printe	Mypec Name 3	Winders -	0	Month.	Day Year
34. Tr	thisporter 10 Azmowledgment of Receipt of Meters is	Jelf.		151	2 P.2
Printe	III II.	- Gustinis		Manil:	Day Year
35. Di	riteparcy				
					Memographics
36. Fa	zardous Waste Report Management Methoc Godes (i.e., codes for hazarcous waste treatment, cispos	sal, and recycling systems)			
					Medical
	1	1		1	
Form	N7CO-22A (Rev. 3-05) Previous editions are obsolete.	DESIG	NATED FACILITY TO F	DESTINATION STATE (IF I	SEU/IIIDED!
					-wallen!

THE HAZARDOUS WASTES IDENTIFIED ON THE HAZARDOUS WASTE MANIFEST ILENTIFIED ABOME AND REARING TO LIFE HAZARDOUS WASTE COOKS US FED SELOW ARE RESTRICTED WASTES WASTE MODIFIED FROM LAND OF A WITHOUT FURTHER TREATMENT UNDER THE LAND DISPOSAL RESTRICTIONS, 40 CER PART 263 / 108.21, ADD 14 3004(C) IN ACCUREANCE WITH 40 CFR 268 7(0), THE EPA WASTE CODE, WASTE SUBCATEGORY, AND TREATSISHING GROWE'S AS APPLICABLE, ARE INCLUDED BELOW

INSTRUCTIONS ... COMPLETE ALL SECTIONS. REFER TO PAGE 3 OF THIS FORM FOR KEY TERMS/DEFINITIONS.

Column 1 Line Item. Enter the manifest line item number (e.g., 11a) that corresponds to the waste code(s).

Column 2 - Waste Codes/Subcategory: Check off all applicable waste codes. For D001 through D043, also chack applicable subcategory, for F001 through F005, check applicable constituents.

. Wastewater/Non-wastewater: Check off "WW" for wastewater and "Non-WW" for non-wastewaters.

Column 4 - LDR Handing Code: Circle the appropriate handling code, as follows:

1 = The waste is a characteristic hazardous waste D001, D002, D003, D004-D011, or D018-43 which is intended for treatment/disposal in a CWA system, CWA-equivalent system, or Class I SDWA system. Underlying Hazardous Constituents

(UHCs) are NOT required to be identified.

The waste is a characteristic hazardous waste D001 High TOC Ignitable Liquids Subcategory (i.e., greater than or equal to 10% TOC) Pursuant to 40 CFR 268.40, the waste must be treated using organic recovery (RORGS) or combustion (CMBST) technology. UHCs are NOT required to be identified.

The waste is a characteristic hazardous waste D001 (other than High TOC Ignitable Liquids), D002. D003 Explosive, Water Reactive or Other Reactive subcategory, D004-D011, D012-17 non-wastewater, or D018-43 which is intended for treatment/disposel in a non-CWA system, non-CWA-equivalent system, or non-Class I SDWA system located in the United States. All UHC's which are reasonably expected to be present must be identified, except for D001 waste that is intended to be treated using organic recovery (RORGS) or combustion (CMBST) technologies. Identify UHC's by completing Sections I and IV of CH

using organic recovery (RORGS) or combustion (CMBST) technologies. Identify UHC's by completing Sections I and IV of CHI Form LDR-1 Addendum and attach completed Addendum to this form.

The waste is a characteristic (i.e., D-code) or listed (i.e., F-, K-, U-, or P-code) hazardous waste which is intended for export and treatment/disposal at a facility located outside the United States. LDR treatment standards do not apply to hazardous waste treated/disposed in a foreign country, and per USEPA guidance, the identification of UHC's (if applicable) is not required for hazardous waste that is intended to be exported. Note however that if the exported waste is subsequently returned for treatment/disposal in the United States, all applicable LDR regulations would apply and a revised LDR notification would be

required.

The waste meets the definition of hazardous debris pursuant to 40 CFR 268.2(h) and is intended for treatment/ disposal in compliance with the alternate debris treatment technologies of 40 CFR 268.45. In accordance with the requirements of 40 CFR 268.7(a)(2): the contaminants subject to treatment (CSTT's) must be identified as part of this notification. Identify CSTT's by completing Section III and IV of the CHI Form LDR-1 Addendum and attach completed Addendum to this form. These constituents are being treated to comply with 40 CFR 268.45.

The waste is a characteristic waste D003 Reactive Sulfide, Reactive Cyanide, or Unexploded Ordnance subcategory, a characteristic waste D012- 17 wastewater, or a listed (i.e., F-, K-, U-, or P-code) hazardous waste. UHC's are NOT required to be identified.

The waste is a lab pack that is intended for incineration using the alternative lab pack treatment standard under 40 CFR 268.42(c).

UHC's are NOT required to be identified; however, the generator must complete and attach the lab pack certification statement on CHI Form LDR-LP. Note that in accordance with 40 CFR Part 268 Appendix IV, lab packs which contain waste codes D009, K003, K004, K005, K006, K062, K071, K100, K106, P010, P011, P012, P076, P078, U134, and U151 are not eligible for

NOTE: IF THE WASTE IS A SOIL CONTAMINATED WITH A LISTED OR CHARACTERISTIC WASTE AND THE GENERATOR WANTS TO USE THE ALTERNATE TREATMENT STANDARD FOR SOILS, CONTACT CORPORATE COMPLIANCE FOR THE APPROPRIATE LDR NOTIFICATION FORM.

SECTION I. CHARACTERISTIC WASTES D001 THROUGH D043

	ABACIERISTIC WASTES DUOT TEROUGH DO43						
COLUMN 1: LINE ITEM SEE MANIFEST	COLUMN 2 WASTE CODE / SUBCATEGORY	COLUMN 3: WASTEWATER/ NON-WASTEWATER	۴		OLU		
унды (б. Биопальной польторицары). «Дадабу?» б борон компория польтория	[] D001 Ignitables, except High TOC subcategory [] D001 High TOC Ignitable Liquids Subcategory (Greater than or equal to 10% TOC)	[]WW []Non-WW []Non-WW only	1 1A	2	3 3	4	6
	[] D002 Corrosives [] D003	[]WW []Non-WW	1	. 2	3	4	6
-	[] Reactive Sulfide, per 261.23 (a)(5) [] Reactive Cyanide, per 261.23(a)(5) [] Explosive, per 261.23(a)(6), (7) & (8) [] Water Reactive, per 261.23(a)(1), (3) & (4)' [] Other Reactive, per 261.23(a)(1) [] Unexploded Ordnance, Emergency Response [] D004 Arsenic		1 1 1 1 1	3 3 2 2 2 3	4 3 3 4	5 5 4 4 4 5	6 6 6 6
Control of the Contro	() D005 Barium	[]WW []Non-WW	, 1	2	3	4	6 8
	[] C006 [] Cadmium	[]WW []Non-WW	1	_	_	•	
	[] Cadmium Containing Batteries [] D007 Chromium [] D008	[] Non-WW only [] WW [] Non-WW	2	2 3 2	. 3 6 3	4	6 6
	() Lead () Lead Acid Batteries	[] WW [] Non-WW {] Non-WW only	1 2	2 3	3 6	4	8
		CHI Form LDR-1, Page 1 of	3		(Elle	clive	12/07/05

[Effective 12/07/05]

SECTION I CHARACTERISTIC WASTES 000 (40 (CONTINUED)

COLUMNI	-DDL4484-2	coldistra;	. dahara
-UME ITEM SEE MANIFE	WASTE CASE / SUBSATEGORY	WASTEWATER	ond about a Heading congr
SCC BOSTORE	Şi	MINIMASTEMATER	a constant for 1 a.s.
	[] 0009		
and the second	[] Low Mercury, less than 260 mg/kg Mercury	£ 11000 € 200 · · · · · · ·	
	High Mercury Organic Subcategory		1 2 3 4
	[] High Mercury Inorganic Subcategory	Non-WW only	2 3 4
	() CO10 Selenium	Non-WW only WW I Non-WW	2 3 4 6 1 2 3 4 6 1 2 3 4 6 2 3 4 5 6 2 3 4 5 6
	() 0011 Silver	1 1	1 2 3 4 6
24 0	[) D012 Endrin	[] WW [] Non-WW	1 2 3 4 6
	D013 Lindane	[]WW [Non-WW	2 3 4 5 6 2 3 4 5 6
-	[] D014 Methoxychlor	[]WW []Non-WW	2 3 4 5 6 2 3 4 5 6
***************************************	I j C015 Toxaphene I I D016 2,4-D	[]WW []Non WW	2 3 4 5 6
AC fortestament oppositions	[D017 2.4.5 TP (Silvex)	[]WW []Non-WW	2 3 4 5 6 2 3 4 5 6 2 3 4 5 6 2 3 4 5 6
***************************************	() D018 Benzene	[]WW []Non-WW	23456
Language American	D019 Carbon tetrachloride	[]WW []Non-WW	1 2 3 4 6
	D020 Chlordane	[]WW []Non-WW	1 2 3 4 6
*************	[D021 Chlorobenzene	3 3 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	1 2 3 4 8 1 2 3 4 6 1 2 3 4 6 1 2 3 4 6
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	i D022 Chloroform	[] WW [] Non-WW [] WW [] Non-WW	1 2 3 4 6
30000000000000000000000000000000000000	D023 o-Cresol	[]WW []Non-WW	1 2 3 4 6
***************************************	D024 m-Cresol	[]WW []Non-WW	1 2 3 4 6 1 2 3 4 6
<del></del>	( ) D025 p.Creso! ( ) D025 Creso!	[]WW []Non-WW	1 2 3 4 6
	( ) D027 1,4-Dichlorobenzene	[]WW []Non-WW	1 2 3 4 6
	[ ] D028 1.2-Dichloroethane	[]WW []Non-WW	1 2 3 4 6
40000-1000-000-000-00-00-00-00-00-00-00-0	1 C029 1.1-Dichloroethylene	[]WW []Non-WW []WW []Non-WW	1 2 3 4 6 1 2 3 4 6
Carlo de Car	1 D030 2.4-Dinitrotoluene	[]WW []Non-WW	1 2 3 4 6 1 2 3 4 6 .
and the second second	[ ] D031 Heptachlor (and its epoxide) [ ] D032 Hexachlorobenzene	WW-ncM[] WW[]	1 2 3 4 6
-	[ ] D032 Hexachlorobutacione	[]WW []Non-WW	1 2 3 4 6
	[ ] D034 Hexachloroethane	[]WW []Non-WW	1 2 3 4 6
	D035 Methyl ethyl kelone	[]WW []Non-WW	1 2 3 4 6
Assistante management	[ ] D036 Nitrobenzene	[] WW [] Non-WW	1 2 3 4 6
Min.	[ ] D037 Pentachlorophenol	I IWW [ I Non-WW	1 2 3 4 6 1 2 3 4 6
	D038 Pyridine     D039 Tetrachtoroethylene	[]WW []Non-WW	1 2 3 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6
	D040 Trichloroethylene	[]WW []Non-WW	1 2 3 4 6
Annual Sales de Atlantiques	D041 2,4,5 Trichlorophenol	[]WW []Non-WW []WW []Non-WW	1 2 3 4 6
and the property of	[ ] D042 2,4,6-Trichlorophenol	[]WW []Non-WW []Ww []Non-WW	1 2 3 4 6
****	[ ] D043 Vinyl Chloride	[]WW []Non-Wv	1 2 3 4 6
			. 2 3 4 8
SECTION II. SP	ENT SOLVENT WASTES F001 THROUGH F005		
_	TEN STORES OF THE POOR		
001111414			
COLUMN 1: LINE ITEM	COLUMN 2:	COLUMN 3:	COLUMN 4:
SEE MANIFEST	WASTE CODE / SUBCATEGORY	WASTEWATER!	HANDLING CODE
	Α	ION-WASTEWATER	
- 35500 515-00-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0	[]F001 KLF002 KLF003 []F004 KLF005 [	110000   2 81 1404	
	1/2 1/2 13: 20: 1   El 200	]WW []Non-WW	3 4 5 6
	1 411 5004 5005		
——(- \dag{/}.	1. ALL F001-F005 [] 12. Cyclohexan	one	[ ] 25. Pyridine
	. Acetula [] 13. o-Dichlorobe	nzene	[ ) 26. Tetrachloroethylene
112	1 n-Ruhd eleche)	anol (F005)	XI 27. Toluene
[]5	5. Carbon disulfide 1.1.15 Ethyl acotate		[ ] 28. 1, 1, 1-Trichloro-
[] 6	Carbon tetrachloride i 16 Ethyl boozen	j 10	ethane
! !	. Chlorobenzene		[ ] 29. 1,1,2-Trichloro-
	i. 0-Clesui	hol	ethane XI. 30. Trichloroethylene
	dictional form		[ ] 31. 1,1,2-Trichloro-
	distinguish from [] 20. Methylene ch	loride	1,2,2-trifluoroethane
	O Connect times to the second times to the control of the control	ketone	[ ] 32.Trichloromonofluoro-
	distinguish from [] 22 Methyl isobut	Aı keroue	methane
	( ) 20. Niti Obelizelle		[ ] 33. Xylene - mixed isomers
£ 1 4.	m-cresol) 1 Cresol mixed in an array [ ] 24. 2-Nitropropar	e (F005	form at -
	Out of the control of	· • •	(sum of o., m., and
	(sum of o., m. and p. cresol)		p-xylene)
	h- n n n n n		

CHI Form LDR-1, Page 2 of 3

[Effective 12/07/05]

<b>3</b>		ï,	•		ten - hat have miles	DK228	5049		SC PPW	2/26/2			Approved.		050-0039
					e (12-pitch) typewriter.)		2. Page 1 of	3. Emer	ency Response	Phone	A Manifest Ti	Saking Nu	<u>"</u> "	<b>1</b> ⊏	
$\uparrow$	UN	IFO NAS	RM HAZARDOUS ITE MANIFEST		7152903		3	(80	0) 483-3	718	an making address		203	4	
	5. 0	lor lor lor	rator's Name and Mall	ng Address nan Guidance nan PO Box 1 1203	and Electronics 693 MS1401 ATTN:Jeff Kuze		<b>Y</b>	481	1 <b>W</b> Kearr inglield, <b>M</b>	ney					
	6.	rens	porter 1 Company Na	me	3.0					•		•	3222	250	
			ean Harbors E sporter 2 Company Na		Services Inc						U.S. EPA ID N				
					l Services Inc						MAD	039	3221	250	
	8.	Desi	gnated Facility Name	and Site Address							U.S. EPA ID N				
	١.	30	an Harbors E 9 American C Dorado. AR 7	ircle 4730						•	ARD	069	7481	92	
Ш	Fe	city	's Phone:	OCOUNES.	<b>7473</b> r Shipping Name, Hezard Cla	ss. IO Number	 ;,		10. Contai	ners	11. Total	12. Unit	13.	Waste Code	es
11	9a Hi	u i	and Packing Group (	lit any))					No.	Type	Quantity	Wt./Vol.	ENA2	EVV3	F005
	H	ヿ	1. NA3077. H	AZARDOUS Y	Vaste Solid N. Thylene), 9, pg	D.S., III	-		•	_	1	D			
Į	1	۲ ا	finencue.	MONEONAL	. HITELINGS OF T	•••			nia	CF	00000				F005
GENERATOR	-	$\dashv$	2 N KOLA	AZARDONS	VASTE SOLID V	0.5.							+	PUUS	1663
8		*	MOLUENE.	TRICHLORDS	THYLENE Q PO		1-0								
			179	1001 -	ZVID BASI	4/4/	<b>199</b>				-	1			
П			3.												1
									<u> </u>	<del> </del>	<u> </u>	<b>├</b>	<del> </del>	<del>                                     </del>	1
	1		4.								1			ļ	
													<u> </u>	<u> </u>	
	,	5.	pecial Handing Instruc CH339288 CH339268	EROR'S CERTIFICAT	ERG#171  RON: Thereby declare that to	he contents of	this consigning	ent are fully	and accurately of temational and n	described abo ational gover	ove by the proper s nmental regulation	shipping nar is, if export	me, and are o shipment and	lessified, pa	ckaged, Imary
			Exporter, I certify that I certify that the waste	the contents of this or minimization statems	onsignment contours to the ac- ent identified in 40 CFR 262.2	?7(a) (if I am a	ched EPA Ackr large quantity	nowledgme generator) Signature	nt of Consent. or (b) (if ) am a s	mail quantity	generator) is true.	-			ay Year
	11			ATyped Name	ther channels	e kees waalb	& ELECT	Tem#:	A COLL	مهور	<u>ue</u>	<u>~ (</u>		94 0	9 2000
ŀ		16.1	64 M. CHEN International Shipments		on to U.S.	447	Export fr	om V.S.	Portor	entry/exit: _					
	ΞΚ	Tran	sporter signature (for	exports only):	\				Date	eving U.S.:		<del>/                                    </del>	$\overline{}$		
-1	ž,	17. T	ransporter Acknowled	ment of Receipt of M	Merials	<u>-</u>	<del></del>	Signature	=	(₹		1	<del>)</del> !	donth C	भै । <i>0</i> न
	ANSYCK	iran:	Western T. T. Mulican 13 hou	JOS. (A)	رے			7	44	لخر	$\Rightarrow$	7		Month I	Jay Year
	3	Tran	sporter 2 Printed/Type	d Name	<del></del>		-	Signature	/17h-4	1	.00.		1	04   1	109
	Ĕ			her Nople					אטעין מנ	Alam II	<u> </u>				
	ΛÌ		Discrepancy  Discrepancy Indication	n Snece		Туре			Residue		Partial I	Rejection		Full	Rejection
		108	resorabeins memeer	L.J Q	<del>luantity</del>	1990				Abb	_				
}	IJ	_		Cooperature)					Manifest Refere	ence munider	U.S. EPA1	D Number			
	5	18b	. Alternate Facility (or	ueneratif)											
	FAC	Far	:Rity's Phone:							·				Month	Day Year
	囼	180	. Signature of Alternat	e Facility (or Generate	н)										L_
	SIA	<u>_</u>	Umpudana Masta Pla	nori Managemeni his	hod Codes (i.e., codes for h	zardous wast	e treatment, di	sposal, and	recycling system	ne)					
	DESIGNATED FACILITY	19. 1.	Hazarious Wasia Ke	A / / >	2.	· · · · · · · · · · · · · · · · · · ·		3.			4.				
	7	ı	1	TUKU		ماد ماد ماد	covered by Sec		xcerxi as noted i	n Hein 18a				$\sim$ 1	110
	N	20	Designated Facility Conted/Typed Name	Winer or Operator: Ce	nification of receipt of hazard	ious materials	COVERED BY BIG	Sign	Ph.	TAT	Mera	0	1	Month	
	IJ			Stu	Qtt			$\omega$	KUL	FOIGNE	ED FACILITY	TO DEST	NOTAN	STATE (I	REQUIRE
	ĒΡ	A Fo	m 8700-22 (Rev. 3	-05) Previous edit	ions are obsolete.		<b> </b>		the denera		_			1	

·	print or type. (Form designed for use on elite (12-pitch) typewriter.)				Form	Approved. OMB No. 2050-0039
<b>A</b> [ ,	HRECOM HAZADDONIO WASTE MANIFEST   21. Generator ID Number	22. Page 4		st Tracking Nur		4.4
Π	(Continuation Sheet) MoD 007152903	0/2	2	0233	209	4 FIF
-	(Continuation Sheet) MOD007152903  4. Generator's Name Northrop Grunman Guidance and Electronic	cs (D)				
Ш	the transfer of the transfer o	Α,				
				U.S. EPA ID I	Jumbor	
	5. Transporter 3. Company Name	×				2750
	Clean Harbors Environmental	Jervices	<u> </u>	U.S. EPAID	Vumber	2250
:	16. Transporter 4 Company Name Clean Harbors Environmental  16. Transporter 4 Company Name Harbors Env. Saxt	1000		mat		
╢┝	Clean hayours ENV. Duri	28. Contain	Δ/E	29. Total	30. Unit	
	7a. 27b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number,	No.	Тура	Quantity	Wt./Vol.	31. Waste Codes
Ш					l t	
$\  \ $						
		-	<del>                                     </del>		+	
Ш		1	1			
$\  \ $	·					
買				1		
GENERATOR					1	
固			l			
			į			
$\Pi$			<del> </del>		-	
Ш			}			
Ш						
			<b>†</b>			
Ш		-				
Ш			<u> </u>			
Ш					İ	
				ļ	1	
					╅	
					1	
			1		1	
		-	1		1	
Ш					1	
$\Pi$		1				
П	32. Special Handling Instructions and Additional Information					
Ш	· · · · · · · · · · · · · · · · · · ·					
11						•
Į		7	<b>/</b>	10		
يو	33. TenSportes. Acknowledgment of Reacipt of Melaniels Signal	N AV		<del>//                                   </del>	/	Month Day Year
TRANSPORTER	Printed Typed Name I Chan de Land Land Land	Kuna	محدا	bus	2cm	- 141507
			Z			O-N- O-N- Voca
N	3000	ine	3/0	<i>[</i> ]		Month Day Year
1	1.1. Williamsoulagent by CHES)		WIL	Lam	4000	91/6107
	35. Discrepancy					•
E						
24	·					
E	36. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous weste treatment, disposal,	and recycling systems	3}			
DESIGNATED EACH ITY	36. Hazardous Wasta Report Management Metricu Codes (Lts., caces the independent washing and administration of the control of				_ 1	
19		L.				
įž	1	1				
Ĺ	A Farm 9700 32A (Peru 3.05). Previous editions are obsolete.	DES	SIGNATE	FACILITY T	O DESTIN	IATION STATE (IF REQUIRED)

# CleanHarbors ENVIRONMENTAL SERVICES*

### Land Disposal Restriction Notification Form

Page: 1 of 1

Printed Date :Apr 06, 2009

MANIFEST INF				2.化在心态设置发展的 10.00000000000000000000000000000000000		الله المساورة على المساورة الله الله الله الله الله الله الله الل
Generato	r: Northrop Grur	nman Guidance ar	nd Electronics C		Manifest Tracking Ir	ifo.
Addres	ss: 4811 W Keard Springfield,M0				002332094FLE	
EPA ID		52903		Sal	es Order No: DK228504	9
LINE ITEM INF			T		LDR Disposal Category	·····································
Line Item:	Page No:	Profile No:	Treatability Group			The state of the s
1.	1	CH339288	NON-WASTEWA	FER	2 (This is subject to LDR	
EPA Waste Co	de			EPA Wa	ste SubCategory	
F002 F003	F005	*		NONE		
LINE ITEM INF	ORMATION			- p		
	Page No:	Profile No:	Treatability Group	。 6. 数据分析的对应的。	LDR Disposal Category	· · · · · · · · · · · · · · · · · · ·
2.		CH339288	NON-WASTEWA	TËR"	2 (This is subject to LDF	R.)
2.	•	0,1000200		•		
EPA Waste Co	L_=++++++++++++++++++++++++++++++++++++	है. कुल का का का ता आरायाच्या का का न्याद वहाँ के का का का		EPA Wa	ste SubCategory	
F002 F003	F005	<del></del>		NONE	the state of the s	
F002 1000	1000	Certil	fication	_		Applies to Manifest Line Items
Pursuant to 40 Part 268.	CFR 268.7(a), I he	ereby notify that this	s shipment contain		stricted under 40 CFR	1. 2
Waste analysis Signature : Title :	data Infere avail	athe, is altrached.	Print Nan		eh MILHAEL ON B. 10 Gilling AN GUIDALA 04/09/2009	tight of the field of the second

print or type. (Form designed for use on elite (12-pitch) typewriter.)	DY214153		PRES					. 2050-00
TERRITARION IS 1. Generator ID Number	2. Page 1 of 3. En	ergency Response	Phone .	4. Manifest	Tracking Nu	imber ' **7 /5 4	A	FLE
WASTE MANIFEST		(%)(1) + 13 - 1 ator's Site Address			057	14)	. 4	
Generator's Name and Mailing Address Morthern Grunnian Guidance and Electronics Conceany	Gener			an maining address	JO,			
Horthrop Grunarian, PiO Box 1893 MS 1401		48:11 W/6	arrey	367				
Flamery a MD 21203	1	Sprandeld	##G 07	202				
Transporter 1 Company Name		······································		U.S. EPA ID			~ t 1	
Glean Harbora Environmental Services Inc.					) d 3 d	3 4 6	2 7 11	!
Transporter 2 Company Name				U.S. EPA ID I	Number 3 () 3 ()	3 2 2	250	·
Clean Horbora Environmental Services Inc				U.S. EPA ID				
Designated Facility Name and Site Address				ARU	0 0 6 2	748	192	
369 American Circle								
E) Denado, AR, 71730 acilitys Phone: (870) 963-7173					<del></del>	<del></del>		
a. 9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Num	nber,	10. Conta		11. Total	12. Unit	13	3. Waste Co	des .
M and Packing Group (If any))		No.	Type	Quantity	Wt,/Vol.	FG02	For	<u> </u>
I. NA 1077, HAZARDOUS WASTE, SOLID, N.O.S. P	FOLUENE,	004	CF	7 600	in			
K MICHLOROETH/ILENEN 9 PG III		00 4	16T	3000	P			
2.								
							<del>                                     </del>	-
				ļ		<b> </b>	1	
3.			-		}			
·	•							
			-	<u> </u>		1	1.	
4.								
		1	i	1	1			
		illy and accurately.	P ( 2	11 1378 7155	shinoing nan	ne, and are	classified, p	oackaged,
14. Special Handling Instructions and Additional Information  15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents marked and labeled/placarded, and are in all respects in proper condition for transpecty in the contents of this consignment conform to the terms of the all certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am Generator's/Offeror's Printed/Typed Name	s of this consignment are fi ort according to applicable	illy and accurately international and n nent of Consent. r) or (b) (if I am a s	described abo	ve by the proper	shipping nan		Month	Day \
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents marked and labeled/placarded, and are in all respects in proper condition for transpe Exporter, I certify that the contents of this consignment conform to the terms of the a I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am Generator's/Offeror's Printed/Typed Name	e of this consignment are fi ort according to applicable attached EPA Acknowledg n a large quantily generato	illy and accurately international and n nent of Consent. r) or (b) (if I am a s	described abo	ve by the proper	shipping nan		Month	Day \
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents marked and labeled/placarded, and are in all respects in proper condition for transpondation of transpondation in the terms of the authority in the transpondation of the secondation of	e of this consignment are fi ort according to applicable attached EPA Acknowledg n a large quantily generato	illy and accurately international and ment of Consent.  f) or (b) (if I am a see	described about the descri	ve by the proper	shipping nan		Month	Day \
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents marked and labeled/placarded, and are in all respects in proper condition for transperson of the contents of this consignment conform to the terms of the content of that the waste minimization statement identified in 40 CFR 262.27(a) (if I am Generator's/Offeror's Printed/Typed Name    Content of the con	o of this consignment are from according to applicable attached EPA Acknowledgen a large quantity generate Signatu	illy and accurately international and ment of Consent.  f) or (b) (if I am a see	described abo national govern small quantity of	ve by the proper	shipping nan		Month 2.	Day \
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents marked and labeled/placarded, and are in all respects in proper condition for transporter period of the contents of this consignment conform to the terms of the content o	o of this consignment are from according to applicable attached EPA Acknowledgen a large quantity generate Signatu	Illy and accurately international and nant of Consent.  f) or (b) (if I am a set)  Port of Date le	described about altimate of the second of th	7 ( 5 5 ve by the proper mental regulation generator) is true.	shipping nan		Month  Month	Day S
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents marked and labeled/placarded, and are in all respects in proper condition for transporter, I certify that the contents of this consignment conform to the terms of the a I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am Generator's/Offeror's Printed/Typed Name  16. International Shipments	s of this consignment are from according to applicable attached EPA Acknowledgen a large quantity generate Signatu Export from U.S.	Illy and accurately international and nent of Consent. r) or (b) (if I am a s e  Port of Date le	described about the descri	7 ( 5 5 ve by the proper mental regulation generator) is true.	shipping nan		Month 2.	Day Day
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents marked and labeled/placarded, and are in all respects in proper condition for transporter, I certify that the contents of this consignment conform to the terms of the attention that the waste minimization statement identified in 40 CFR 262.27(a) (if I am Generator's/Offeror's Printed/Typed Name  16. International Shipments Import to U.S.  Transporter signature (for exports only):  17. Transporter Acknowledgment of Receipt of Materials  Transporter 1 Printed/Typed Name  Transporter 2 Printed/Typed Name	s of this consignment are front according to applicable attached EPA Acknowledgen a large quantity generate Signatu Export from U.S.	lly and accurately international and in ent of Consent. r) or (b) (if I am a s e Port of Date le	described about attional government quantity of the strength o	ye by the proper imental regulation penerator) is true.	shipping nan		Month Month 7.	Day Day Day
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents marked and labeled/placarded, and are in all respects in proper condition for transporter to the terms of the all certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am Generator's/Offeror's Printed/Typed Name  16. International Shipments Import to U.S.  Transporter signature (for exports only):  17. Transporter Acknowledgment of Receipt of Materials  Transporter 1 Printed/Typed Name  Transporter 2 Printed/Typed Name	s of this consignment are front according to applicable attached EPA Acknowledgen a large quantity generate Signatu Export from U.S.	Illy and accurately international and nent of Consent. r) or (b) (if I am a s e  Port of Date le	described about attional government quantity of the strength o	7 ( 5 5 ve by the proper mental regulation generator) is true.	shipping nan		Month Month 7.	Day Day Day Day
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents marked and labeled/placarded, and are in all respects in proper condition for transporter, I certify that the contents of this consignment conform to the terms of the at certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am Generator's/Offeror's Printed/Typed Name  16. International Shipments Import to U.S.  Transporter signature (for exports only):  17. Transporter Acknowledgment of Receipt of Materials  Transporter 1 Printed/Typed Name  Transporter 2 Printed/Typed Name  18. Discrepancy	s of this consignment are front according to applicable attached EPA Acknowledgen a large quantity generated Signature Export from U.S.  Signature Signature Export from U.S.	lly and accurately international and ment of Consent. r) or (b) (if I am a s  Port of Date le	described about attional government quantity of the strength o	ve by the proper imental regulation generator) is true.	shipping nan		Month   2.    Month   7.    Month   7.	Day    U   C   Day    U   Z
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents marked and labeled/placarded, and are in all respects in proper condition for transporter to retrify that the contents of this consignment conform to the terms of the all retrify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am Generator's/Offeror's Printed/Typed Name  16. International Shipments Import to U.S.  Transporter signature (for exports only):  17. Transporter Acknowledgment of Receipt of Materials  Transporter 1 Printed/Typed Name  Transporter 2 Printed/Typed Name	s of this consignment are front according to applicable attached EPA Acknowledgen a large quantity generated Signature Export from U.S.  Signature Signature Export from U.S.	lly and accurately international and in ent of Consent. r) or (b) (if I am a s e Port of Date le	described about attional government quantity of the strength o	ve by the proper imental regulation generator) is true.	shipping nan		Month   2.    Month   7.    Month   7.	Day    U   (
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents marked and labeled/placarded, and are in all respects in proper condition for transporters, I certify that the contents of this consignment conform to the terms of the a I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am Generator's/Offeror's Printed/Typed Name  16. International Shipments Import to U.S.  Transporter signature (for exports only):  17. Transporter Acknowledgment of Receipt of Materials  Transporter 1 Printed/Typed Name  Transporter 2 Printed/Typed Name  18. Discrepancy	s of this consignment are front according to applicable attached EPA Acknowledgen a large quantity generated Signature Export from U.S.  Signature Signature Export from U.S.	lly and accurately international and ment of Consent. r) or (b) (if I am a s  Port of Date le	described about ational government quantity of the control of the	ve by the proper imental regulation generator) is true.	shipping nanns. If export s		Month   2.	Day    U   C   Day    U   Z
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents marked and labeled/placarded, and are in all respects in proper condition for transporter support, I certify that the contents of this consignment conform to the terms of the at I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am Generator's/Offeror's Printed/Typed Name  16. International Shipments	s of this consignment are front according to applicable attached EPA Acknowledgen a large quantity generated Signature Export from U.S.  Signature Signature Export from U.S.	Illy and accurately international and intent of Consent.  (f) or (b) (if I am a selection of Port of Date le	described about ational government quantity of the control of the	ve by the proper imental regulation generator) is true.	shipping nan		Month   2.	Day    U   C   Day    U   Z
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents marked and labeled/placarded, and are in all respects in proper condition for transporter support, I certify that the contents of this consignment conform to the terms of the at I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am Generator's/Offeror's Printed/Typed Name  16. International Shipments	s of this consignment are front according to applicable attached EPA Acknowledgen a large quantity generated Signature Export from U.S.  Signature Signature Export from U.S.	Illy and accurately international and intent of Consent.  (f) or (b) (if I am a selection of Port of Date le	described about ational government quantity of the control of the	ve by the proper imental regulation generator) is true.	shipping nanns. If export s		Month   J.   Month   7.   Month   7.	Day    U   C     Day    V   Z     Day    I   Rejection
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents marked and labeled/placarded, and are in all respects in proper condition for transporter support, I certify that the contents of this consignment conform to the terms of the at I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am Generator's/Offeror's Printed/Typed Name  16. International Shipments	s of this consignment are front according to applicable attached EPA Acknowledgen a large quantity generated Signature Export from U.S.  Signature Signature Export from U.S.	Illy and accurately international and intent of Consent.  (f) or (b) (if I am a selection of Port of Date le	described about ational government quantity of the control of the	ve by the proper imental regulation generator) is true.	shipping nanns. If export s		Month   2.	Day    U   C   Day    U   Z
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents marked and labeled/placarded, and are in all respects in proper condition for transporter per certify that the contents of this consignment conform to the terms of the all retrify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am Generator's/Offeror's Printed/Typed Name  16. International Shipments	s of this consignment are front according to applicable attached EPA Acknowledgen a large quantity generate Signatu Export from U.S.  Signatu Signatu	lly and accurately international and internation	described about altional government quantity of the control of the	ve by the proper imental regulation generator) is true.	shipping nanns. If export s		Month   J.   Month   7.   Month   7.	Day    U   C     Day    V   Z     Day    I   Rejection
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents marked and labeled/placarded, and are in all respects in proper condition for transporter support, I certify that the contents of this consignment conform to the terms of the at I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am Generator's/Offeror's Printed/Typed Name  16. International Shipments	s of this consignment are front according to applicable attached EPA Acknowledgen a large quantity generated and a large generated generated and a large generated generated and a large generated g	lly and accurately international and internation	described about altional government quantity of the control of the	ve by the proper imental regulation generator) is true.	shipping nanns. If export s		Month   J.   Month   7.   Month   7.	Day    U   C  Day    V   Z  Day    I Rejection
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents marked and labeled/placarded, and are in all respects in proper condition for transpect exporter, I certify that the contents of this consignment conform to the terms of the all certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am Generator's/Offeror's Printed/Typed Name  16. International Shipments	s of this consignment are front according to applicable attached EPA Acknowledgen a large quantity generate Signatu Export from U.S.  Signatu Signatu	lly and accurately international and internation	described about altional government quantity of the control of the	ve by the proper imental regulation generator) is true.	shipping nanns. If export s		Month   J.   Month   7.   Month   7.	Day  Day  V 7  Day  12  II Rejectio
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents marked and labeled/placarded, and are in all respects in proper condition for transporter, I certify that the contents of this consignment conform to the terms of the all certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am Generator's/Offeror's Printed/Typed Name  16. International Shipments	s of this consignment are front according to applicable attached EPA Acknowledgen a large quantity generated and a large quantity generated according to a large quantity generated according to a large quantity generated as a large quantity genera	Illy and accurately international and nent of Consent. c) or (b) (if I am a second part of Date letter of Date	described about ational government quantity of the saving U.S.:	ve by the proper imental regulation generator) is true.	shipping nanns. If export s		Month   J.   Month   7.   Month   7.	Day    U   C     Day    V   Z     Day    I   Rejection
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents marked and labeled/placarded, and are in all respects in proper condition for transpex perspects. I certify that the contents of this consignment conform to the terms of the a licertify that the waste minimization statement identified in 40 CFR 262.27(a) (if I and Generator's/Offeror's Printed/Typed Name  16. International Shipments	s of this consignment are front according to applicable attached EPA Acknowledgen a large quantity generated and a large quantity generated according to a large quantity generated according to a large quantity generated as a large quantity genera	Illy and accurately international and nent of Consent. c) or (b) (if I am a s e) Port of Date le Residue Manifest Reference	described about ational government quantity of the saving U.S.:	ve by the proper imental regulation generator) is true.	shipping nanns. If export s		Month   J.   Month   7.   Month   7.	Day Day Day Day Day Day
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents marked and labeled/placarded, and are in all respects in proper condition for transporter, I certify that the contents of this consignment conform to the terms of the all certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am Generator's/Offeror's Printed/Typed Name  16. International Shipments	s of this consignment are front according to applicable attached EPA Acknowledgen a large quantity generated and a large quantity generated and a large quantity generated and a large quantity generated at a large quantity generated as a large quantity generated at a large qua	Illy and accurately international and nent of Consent. c) or (b) (if I am a s e) Port of Date le Residue Manifest Reference	described about ational government quantity of the saving U.S.:	ve by the proper imental regulation generator) is true.  Partial  U.S. EPA	shipping nanns. If export s		Month    2   Month   7   Month   8   Fu	Day    U   C     Day    Day    Day    Day    Day    Day

print or type. (Form designed for use on el	1 24 Canamitar ID Number	22. Page 🛬	- 23. Mani	fest Tracking Nu	mber	oproved. OMB No. 2050-
(Continuation Sheet)	MODO07152903	6/2	<u> </u>	3003	5774.	ب <u>۲۱ ت</u>
4. Generator's Name North (10	MODOU7152903	V				
75 Transporter - Company Name -	· T - 1 T			U.S. EPA ID		6587 A
, tibioporei	rial learsport the			U.S. EPA ID	Number	५४४७।
16. Transporter 4 Company Name	Hostors Erry. Sky	0100 <u></u>		1978	D034	1325250
7a. 27b. U.S. DOT Description (including Prope	Shipping Name, Hazard Class, ID Number,	20. 001112		29. Total Quantity	30. Unit Wt./Vol.	31. Waste Codes
M and Packing Group (if any))		No.	Туре	Guartary	1.1.2.10.1	
				<del> </del>	+	
					1 }	
			<u> </u>	<u> </u>		
			+		+ +	
			1		-	
				ļ	++	
					-	
				ļ	-	
				<b>-</b>	1.	
					-	
			_	<del> </del>	++	
			ł		-	
32. Special Handling Instructions and Additional I	nformation		• •	•		
		<del></del>			<del>,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</del>	
33. Transporter Acknowledgment of Rec Printed typed Name	eipt of Materials Signa	turpe /	7			Month Day
	hnson	1/shim	Chille Contract	tur		1/2 1/8/
34. Transporter Acknowledgment of Rec	eipt of Materials . Signa	ture '		<u> </u>		Month Day
Printed/Typed Name	(Earland Los CHA)		WX	X day on	س علمندا	1/1/4
35. Discrepancy						
	:;					
36. Hazardous Waste Report Management Meth	od Codes (i.e., codes for hazardous waste treatment, disposal,	and recycling system:	s)		i	. •
	•				1	
			***	~		•



## **Land Disposal Restriction**

Page 1 of 1

ENVIRONMENT	Hardo TAL SERVICES	~	Notificatio	n Form	Print Date:	12/09/2008
MANIFESTI			Control of the Contro	110-100-100-100-100-100-100-100-100-100		<u> </u>
Generator:	Northrop Gr	rumman Guidance a	and Electronics Company		Manifest No	<u>-</u>
Address:	4811 W Kea	arney			000577414FLE	
	Springfield,			Sales O	der No: DK2141336	
		7152903			///	
LINE ITEM I	NFORMATIO	ON				
Line Item:	Page No:	Profile No:	Treatability Group:	LDR Disposal Catego		
1	1	CH339288	NON- WASTEWATER	2 : This is subject to	LDR.	
EPA Waste	Codes			EPA Waste Subcatego	У	
F002 F003 F0	05	and the second s	Certification	NONE	· Andrews Harry	Applies to Manifest Line Items
Pursuant to	o 40 CFR 2	68.7(a), I hereby no	tify that this shipment cont	ains waste restricted und	der 40 CFR Part 268.	1
Signature	an	where available, I	s attached Print N	ame: Ada_S	eyla-	4
Title:	Enu.	E	Date:	12/10/08		

UNIFORM HAZARDOUS 1: Generator ID Number WASTE MANIFEST MA C D D C 7 1 5 2 9 1)	Secretary and the second secretary and the second s	3, Emergency R	19 37 18	00		)598	FLE
5. Generator's Name and Mailing Address North righ Countries: North righ Countries: North righ Countries: North right Countries: North ri			oddress (If different V Kearrey , P Leid , M.C. 65	0 Box 1693			
6 Transporter Company Name Claser Harbors Eng Services Ins				and the second second second	11 2 2 2	3225.	o ·
7. Transporter 2 Company Name	, , , , , , , , , , , , , , , , , , , ,			U.S. EPA ID N	00	oon	770
8. Designated Facility Name and Site Address Ligan Matheria Ed Distriction Liu. 2004 Appropriate Circle Ed Characto, AF, 74736 Facility's Phone: (2.71), 1963-7473				U.S. EPA ID N	lumber	4 6 1 0	
9a. 9b. U.S. DOT Description (Including Proper Shipping Name, Hazard Class, ID N HM and Packing Group (if any))	umber,	10 No	Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste	Godes
Waste Aeroscus I. Lünteromore		0 0		00002	201.0	Y <b>001</b>	
TRO, WASTE FLAMMABLE LIQUIDS, N.O.S. JUM		) (100 (100 (100 (100 (100 (100 (100 (10	DE	00100	•	poor from	
Waste Potassium Cermanisanatra Luni		0.0	1 0.5	00300		)001 	
4 AA STTE POTASSILIST PERMANGANATE 5 1 LINE  14. Special Handling Instructions and Additional Information	490 PG 0	a t	i . b ø	10350		2001 3 (3)	
1 15680 <b>FRG# (26</b> 10 10) 1 10080 <b>CR6# (28</b> 156		3 CH 1 CH	202301 <b>26.</b> 203301 <b>26.</b>	<b>116</b>			
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the content marked and labeled/placarded, and are in all respects in proper condition for transpects. Exporter, I certify that the contents of this consignment conform to the terms of the legistry that the waste minimization statement identified in 40 CFR 262.27(a) (if I are contents of the contents of	port according to applic attached EPA Acknow	able international ledgment of Conse	and national govern	mental regulations			
16. International Shipments Import to U.S.	i Export from		ort of entity/exit:	-		117	i 3  07
Transporter signature (for exports only):  17. Transporter Acknowledgment of Receipt of Materials  Transporter 1 Protect/Typed Name  Transporter 2 Printed/Typed Name	Sign	nature	A TTY			Month	Day Year
Transporter 2 Printed/Typed Names  18, Discrepancy	Sig	nature	7,	6/2		Month 1	Day Year
18a, Discrepancy Indication Space Quantity	/ре	Resid	ue èference Numbér:	Partial Rej	ection	Įρ	II Rejection
18b. Atternate Facility (or Generator) Facility's Phone:		Transition 1 to		U.S. EPAID I	lumber.		
18c. Signature of Alternate Facility (or Generator)  19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous wa	iste treatment, disposa	l, and recycling sy	slems)			Month	Day Yes
Designated Facility Owner or Operator: Certification of receipt of hazardous material	3, is covered by the mani	fest except as not	LU( ad in Item 18a 💎		ijili		
Printed/Typed Name		nature		E Transfer to		Month	Day Yea

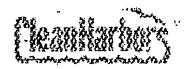
56	ansporter		(Nor	<u>: کرک</u>	<u> </u>	<u>. Yoo</u>	<u>(.5</u>	<u> Paris</u>	<u>A</u>	U.S. EPAIC		<u> </u>	<u>13</u> 35	<u>05,</u>
27a.	27b. U.S. DOT De and Packing Grou	scription (including o (if any))	Proper Shipping Na	me, Hazerd Clas	s, ID Number			28 Conte	iners Type	29. Total Quantity	30. Unit Wt./Vol.	7:31.	Waste Codes	
*	t iyasae. T	CTASSIUN CTE ISTO	CYAMIDES					0 0 12	U F	unna	į p	China a	(4 <b>6</b> 00)	
×	e mastes	Yel Murcool	DROXIDE S	OLD ROPA	8,004182 ***	APOII		o ú i	i i	4010	F	13002		
			DRONGE S					i ji	i i	0.7	(0)	Cation.		
	MORE THA	n 10 PEGC	COTHER TR	ecation The	<b>(2011)</b> P	3.0		woo.	io e	nuit	P.	D002;		
	g swasten Annoles		CONTAINED CONTAINED	IN MANUA	FACTUR	FD.		0.03	N.F	0-0 7:2		E/020	Uter:	
			OSIVE LICIL MOGJAJE			ysodių Ž	M		O.F.	0.095	i P	Eup)/s	EPINA.	
X		esen Pirtit		iecepresii 1742-1682		## <b>25</b> 16 E		~ir-Q**				**************************************		
	TZGYASTK HYTEKSZU K	COMMUNICATION OF THE SCALE	CELIOUIDS (UM HYCH) (	Terno in Harena Karena	05 (5) 1 ( Uli)2	.01941 622 <b>PG</b> II		0.01	C#	0 0 3 0		G053	Uios V	
×				7215-34 (45-12) 27-27-34			Œ			Alom saidsey				148 748
	IA BATTEL SOLICION	RES, Dirt Väles, Po il	CONTARIN	g Potas	SLAM INV	DROME		0 0 1	b.	d'ad	F			
32,S	pecial Handling res CH1274126 CH201441	tructions and Addit	ional Information				10 11 12 13	CH12353 - SH2357 CH23755 CH2275 CH2275	操	樹	7:TOT 1:65 1:07:01 1:07:01 1:07:01	<b>7</b> 9106		
	ransporter ed/Typed Name	Acknowledgment	of Receipt of Materia	is			Signaturê	Yes.	ryjů ci	· W	Lin		Month Da	ay Ye 910
	ransporter ed/Typed Name	Acknowledgment	of Receipt of Maleria	lis *			Signature						Month D	ay Ye
FACILITY 1	Discrepancy													

25. Transporter Con	npany Name				U.S. EPAID N	umber.			
26. TransporterCon	npany Name				U.S. EPA ID N	umber			
27a. 27b. U.S. DOT Descript HM. and Packing Group (if a)	on (Including Proper Shipping Name, Haz iv))	ard Class, ID Number,	28. Contain No. 🍇		29, Total Quantity 14.5	30. Unit Wt./Vol.	31 W	aste Codes	
is waste co ic n.o.s. slimbie	HROSIVE BOUID ACIDI HPO II	INOTOANIC	10.1%	or.	00031		ten.		
18 CORROSIV X N 28 18 CHLC	E LIGUID, ACIDIC, CHGA HCL2METHYL 23-DHYI	NIC SRCISOTHIAZOL-3-ONE) :	fig 1	DΨ	0 0 0 1 0				
A PARTECO	RFICSIVE LÍQUID, ÁCIÐI C ACID, HYDROMVAGET	LONGANIC,	igas	* 2		Yes	Dist2		
in wastere	PÜPOŠIVĘ LIČUID; ĐASIC						Ejűnz		
X NICK & UNGQ		TLEADISHASOTTFC III		37734 NJ-53	o eroari		rove		
			0.0.2.		0.6.6.00				
		(LEAD) DAIA3077 FG III*	, o o i .	D M	4949	(C)	D003	4.4	
2) WAZARDO	je vaste, solio, ii ca	LILEAD)(I) MASOTT PE III	6 6 2	5 M	0000	P	Dinos 3/4		
	uswaste solid; no š Hlorgethy energy		6562	o is	0 0 R 0	) 	eous Total		X
23 HAZAROO	US WASTE LIBUID, N.O.	E (LEAD)/FIJA 3002 PT 91	W V 2	O.F.	40.71	P	Cried.		
26 HAZARDO	NS WASTE MOUNT NO	III ƏRISBALLA (CIAŞI), Y	003	ů.	0.000	*1 *1	i qui		
32. Special Handling Instruction	ons and Additional Information		70 CH26354	ers i		1552		1 2 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	
16 CHASTER EXT 17 CHATHAI ET 16 CHASTER 19 CHASTER			22 CH241951 22 CH24197 24 CH24197	濉	削	2)FLEX 1455.1X	MEI N	* 2 %	
33. Transporter Ackr Printed/Typed Name	owledgment of Receipt of Materials	. Signatu	re .				M _C	onth Da	y Year
34 Transporter Ackr Printed/Typed Name	iowledgment of Receipt of Materials	Signatu	re				4* M	onth Da	y Year
35. Discrepancy									
38. Hazardous Waste Report	Management Method Codes (i.e., codes	for hazardous waste treatment, disposal, ar	nd recycling systems				ern er		
30. Hazaroous waste Repor	Wanagerren world Sect (i.e.		<u> </u>					Parago	

1000	int or type. (Form designed for use on elile (12-pitch) typewriter.).	· Ave co				Approved. Of	VIB No. 20	<u>050-0039</u>
	FORM HAZARDOUS WASTE MANIFEST 21 Generator ID Number (Continuation Sheet) 44 O D 8 6 7 1 5 2 8 0 1	22. Page 1	23. Manii	est Tracking Nun G U 4 (7		B FLE		
	enerator's Name cuthrup Grunuman							
25.	Transporter Company Name			U.S. EPA ID N	lumber			
26.	ransporter Company Name		12.	U.S. EPAID N	umber			
27a. HM	27b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if anyl))	28 Contair		29. Total Quantity	30. Unit Wt.A/ol.	31: Was	le Codes	
X.	ZS HAZAROCUS WASTE, LÍQUID, WO.S. (LEAD) DIVA 3092 PO III	G V 1	ů M	1	V. 27	Lione		
X	28. HAZARDOUS WASTE, LIQUID, N.O.S. (LEAD) BREENICO, NA PLEZPONI	0.0.0	D.A.	0.7 4.6.6	100	0004 ¹ C	002	caitii ''. *
	27' NGN HAZARDYDUS, NON D.C.T. REGULATE() LIGUID PÍA,NONE	n o i	0.6	0.00	E.			
	28 HOW HAZARDOUS, NON D.C.T. REQUIATED TO LIQUID RIA NONE	0.03	D f	10:10:23:53				
	SILHON HAZAZDOUS, NON DIO TIREGULATED 3 LIQUID NIA NONE	0.07		00.0	, <b>Q</b>			
	SQ MON HAZARDOUS, NON D.O.T. REGULATED (*) LIQUIG NA NONE	0.01	1	0070				
	31 MON DOT REGULATED/MINVERSAL WASTE LAMPSIMIA NONE	0.03	2	0.0.0	4			
	SE NOVED OF REGULATED MONERNA	.00	12 m	01045				
がある	33, NON DOT, REGULATED NONE, MA	on its	0.7	one his	n.			
	SALNON DO L'REGULATED NONE NA	ŭ 2 8	D.E.	<b>4</b> 20-7 8				
32.5	pecial Handling Instructions and Additional Information. CH25636 F. F. T. 177 5.755 CH273627 1.555 CH274136 1.555	0 (12563)35 ( CH275631 2 CH276403 3 CH286832			/45 /470 () /55 /60	w		
	ransporter Acknowledgment of Receipt of Materials	4 CH26377			6:55	_>t ~ Month	Day	Year
34. T	ransporter Acknowledgment of Receipt of Materials ad/Typed Name Signature					Month		
15 154	iscrepancy							
36. l								
36. I	lazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and r	recycling systems)					2, C., A.	
***, ;						SEACH ITY		

1,	Transporter Company Name			U.S. EPAID				
26. 27 <i>6</i>	Transporter Company Name .  27b. U.S. DOT Description (Including Proper Shipping Name, Hazard Class, ID Number,			U.S. EPAID N	umber			
HM	and Packing Group (if any)):  30. NOW D.O. T. CEGULATED WORLD MA	28. Contai	Туре		30. Unit Wt/Vol. /	31	Waste Code	<b>x</b>
	35 NOV COT REGULATED/IUNIVERSAL WASTE / LAMPS) MONENCHE		P.M	04031	<b>P</b> .			
		10 9 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7		0.004	P.			
7 4								
) (4)	- 14 ⁴ 5							**************************************
	pecial Handling Instructions and Additional Information							
	CHITHERE (LEE)							
Printe	ransporter Acknowledgment of Receipt of Materials ed/Typed Name Signature					. Mor	ith Day	Year
Printe	ransporter : Acknowledgment of Receipt of Materials ad/Typed Name : Signature					Mon	th Day	Year
35. D	iscrepancy							

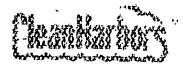




## Land Disposal Restriction Notification Form

Date: 12 / 13 / 2007

MANIFEST IN	FORMATIO!	e distribution of the second supported to the state of the second support of the second	والإناع المعاون المعاونة والمعاونة و	-				
C. rater:	orthrop Gru	1911/80	na ku pandina Primpina Maria in mua Pikindha Mali in Araba Min. Pin-Aria Ministra		Marsifest No			
Address: 4611 W Rearray					001020598 FLE			
8	gringfield, N	10, 65803			Sales Order No: C)(4709863			
EPA ID多	100007	15/993			Manifest Document No: 00001			
LINE ITEM IN	FORMATION		ng atan di danggan di ngangganggan ngan gala 10° nga taonan at ang at makadan na di danggan nganggan nganggan Nganggan sa di nganggan at ang at					
Line Item:	Page No.	Frofile No:	Treatability Group:					
1	4	LOCRO	NON-WASTERWITER	and the second	This is subject to LDR.			
EPA Waste	Codes			EPA V	Vaste Subcategory			
2901				eldelingi	s, except High TOC Liquida			
Line Item:	, ,	1	Treatability Group:					
2	i	LOCRD	NCN-WASTEWATER	2 :This is subject to LDR.				
EPA Waste	Cades				Vaste Subcategory			
D(5);	de mantere en mantere en annome sy antonione	والمراد المراد المراد والمرد إن وجوالية المراد المر	و يعدي وه دار و در دو		C Ignitable Liquitia			
F003		ių, is is _{dr} ama kaus eri nito su is e ^r de spanislys priksijos, kied diklaima er d ^{a d} am, to is tarinininin gamo tarpin, spago to i fryd dikla ^a tina eritina inkais diklaudina diamatininininininininininininininininininin	andrede appropriate from the control theory of scholars for the Statesty specialization of a Spiritual Association of the control the control to the control		Disuffice, Cyclonexanone, anotor methanol ministres only			
Line Item:		Profile No:	Treatability Group: WASTEWATER		hisposal Category: This is subject to LDR			
3		CH283381	THE SECOND CONTRACTOR OF THE PARTY.		The to a select the second control of the second se			
FED Waste	Codes		ر المرافقة ا		Vaste Subcategory			
		and the second s	and the state of t	Ignitable	s, except High TOC Uquids			
Line item:			,		Disposal Category:			
A	•	CH283381	VVASTEVVATER		This is subject to LDR			
EPA Waste	Codes			EPA V	Vaste Subcategory			
0001				igallable	s, except High TOC Liquida			
Line Item:	Page No:	Profile No:	,		lisposal Category:			
5	2	LCCR!	NON-MASTEVIATER	1. P. C.	This is subject to LDR			
EPA Waste	Codes	lle, viene my administrativa est est demonstrativa per principal de transitiva des à la latte d	To a distribution of the passess produced the second section of the second section of the second second second	EPA V	Vaste Subcategory			
0003		ده الله و دوم موسوده ما چون برای در ماهنده موسوده همهند برند موسوده برند میران موسوده این موسودها و از این موس در افغان از این از این		Reactist	Cyanides			
F095	and which the second special property of the second of the second	ر الرواد الله المعادل على المعادل الله المواد الله المواد الله المعادل الله المعادل الله المعادل الله المعادل والمعادل المعادل المعادل الله المعادل	us activus automorphismismos Projektivis or Aleksoprisagnisminis (1646 phinosophis aphies) Ab Mayullin Mayullingishinginin kuni or Aleksop Park (Automorphismismismi Trajektivismisma (1870 phinosophismismismismism	NONE				
Line Item:	Page No:	Frofile No: CH27-136	Treatability Group:		Disposal Category: This is subject to LDR.			
6		wasatan		1				
EPA Waste	Codes	and allowed the same of the same and the same	د ۱ ما داند الله شاهد الله الله الله الله و المساولة المساولة الله الله الله الله الله الله الله ال	EPA Waste Subcategory				
0002		nagara después ja complet vad de trabalente del trabalente commune e en entre product promotiva del del la seg En el promotivo de la seguir de la seguir del la seguir del e seguir de la seguir de la seguir del del del del	الدومات و الله من المحاولة و الله الدومات المحاولة و المحاولة و الله و المحاولة المحاولة المحاولة و المحاولة و وقد المحاولة المحاولة والمحاولة و المحاولة و	K	e Characteriste			
Line Item	Page No:	Profile No:	Treatability Group: NON-VAS!TEWATER		Hisposal Category: This is subject to LL-R			
7	Z.	CH236441	MANAGER STEEL STANDARD	1				
EPA Waste	Codes			EFA Waste Subcategory				
		and the second s	and an angular day of page of a 1 to 1	C0008N	e Characteristic			
ì	Page No:	Profile No:			hsposal Calegory: This is subject to LDR			
ã	, 7	LCHCI	MON-MASTÉMA FR	,	THE TOTAL STATE OF THE STATE OF			
EPA Waste	Cooks	e and annual and the company of the state and the state of the state o		ELY A	Vaste Subcategory			
0003			ne v e er e de heer per referen hangt en er en enreiske t	High Historie 1998,6				
11151		. Ex a gar sen no a Major consider a discussiva de cinacida d	THE R. P. LEWIS CO., LANSING, MICH. LANSING, MICH.	Him tan	groces will not the medical securities			

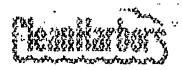


## Land Disposal Restriction Notification Form

Page 2 of 5

Date: 12 / 13 / 2007

MANIFEST INFORMATION Trator, Northlop Ghumman Wanifest No Address: 4611 W Kearney 001020598 FLE Springfield, MO 65803 Sales Order No: CK1709863 EPA10# M O D 0 0 7 1 5 2 9 0 3 Manifest Document No: 00001 Line Item: | Page No: Profile No: Treatability Group: LDR Disposal Category: 10 CH290998 WASTEWATER 2 :This is subject to LDR **EPA Waste Codes** EPA Waste Subcategory 0002 Corrosive Characteristic 0003 Readline Suffices Line Item: Page No: Profile No: Treatability Group: LDR Disposal Category: 11 CH280996 WASTEWATER 2: This is subject to LDR. **EPA Waste Codes EPA Waste Subcategory** 0002 Conosive Characteristic 0003 Reactive Sulfides Page No: Line Item: Profile No: Trestability Group: LOR Disposal Category: 12 CH287866 WASTEWATER 2: This is subject to LOR. (Naste Codes EPA Waste Subcategory Conosive Characteristic 0003 Reactive Sulfides Line Item: Page No: Profile No: Treatability Group: LDR Disposal Category: 13 CH287966 WASTEWATER 2: This is subject to LOR EPA Waste Codes **EPA Waste Subpategory** 0002 Corrosive Characteristic 0003 Reactive Sulfidea Line Item: Page No: Treatability Group. Profile No: LDR Disposal Category: NON-WASTEWATER 3Î LOCKA 2: This is subject to LDR. **EPA Waste Codes EPA Waste Subcategory** 0002 Conosive Characteristic Line Item: Page No. Profile No: Treatability Group: ILDR Disposal Category: CH278721 NON-WASTEWATER 2: This is subject to LDR. EPA Waste Codes EPA Waste Subcategory 0002 Conosive Characteristic Line Item: Fage No: Profile No: Treatability Group: LDR Disposal Category: LOCKE NON-WASTEVIATER 2 : This is subject to LDR. Waste Codes EPA Waste Subnategory DOO: Corresive Characteristic Line Item: | Page No: Profile No: Treatability Group. LDR Disposal Category: NON-VIASTEWATER CH282958 2 This is subject to LDG EFA Weste Codes EPA Waste Subcategory 0.000



## Land Disposal Restriction Notification Form

Oate: 127 (37 2007)

MANIFEST INFORMATION								
Guerakon Northrop Grummas					Marifest No			
Address: 4911 W Kearney					001020698 FLE			
3	Springfield, M	AC 86803			Sales Order No: CK1709663			
EPA IDM M O D 0 0 7 1 5 2 6 0 3					Manifest Document No: 00001			
Line Item	Page No.	3	Treatability Group:					
20	j	CH0/62955	NON-WASTEWATER		This is aubject to UDF.			
EPA Waste	Codes			EPA Waste Subcategory				
50008	a digit qui di grama qui mandra para maggi agginti gara qui a si di gi qui pi qua si qua que que que que que q La digit qui di giuli di constitució que	and of the state of	tere i presenta appella i presenta de la presenta de la presenta de la constitución de la	Toxicity Characteristic for Lead				
31	Frage No:	a a		3	Disposal Category:			
21	3	CH782963	NON-WASTEWATER	2 -	This is subject to LDR			
EPA Waste	Codes			EPA V	Vaste Subcategory			
0000	ari i No. assertant più a sector a servico anno ad dans No. assertant de l'Albertant de l'Albert	Company of the state of the sta		Texicky	Charapterisite for Less	and the factor of the second control of the		
Line !tem:	í - :	Profile No:			Disposal Category:			
22	,	CH288981	ROM-WASTEWATER	4:	Meets LDR Standards			
EPA Waste	Codes			EPA V	Vaste Subcategory			
FOOR FOOS			uri barri - Emparinda Nobella barrinari A Millara describe inscribente e e antica e e e inscribente e e e	NONE				
		der der jahren der	LDR Chemical D	ata	to be at the same party and the			
				derlyin		Contaminants		
Chemiasi				zardou istituer		<u>Subject to</u> Treatment		
METHYL ETH			-	el.	Ÿ	PI		
TRICHLOFUE	,	ر. الدر الدارس ا والدارس الدارس الد	terprises the Millian processor of these places? I so to det 200 files and those submitted that the second of the	14 		u;		
Line Item:		Profile No:	Treatability Group: NON-WASTEV ATER	2	isposal Category: This is subject to LCR	,		
23	3	CH384027	Indianame (Carbicia		The et anders in sole	raga ta bila ay ar 11 maranaga maja sapatana, ya alip pembagana kualmidanab na na ar a		
EPA Waste	EPA Waste Codes EPA Waste Subcategory							
0008		the property of the second of	rano tanà aora dalam e Basada hamban, pendinda pendinda pendinda dia fizikandan va aorafitra dalam Mangada pendinda di manda aran ha banda da band	Toxicity Characteristic for Lead				
Line Item:		Profile No			lisposal Category:	, 1		
24	, i	CH284636	NON-WASTEWATER	<u> </u>	This is subject to LDP			
EPA Waste	Cades			EPA W	Vaste Subcategory			
D006	e er senerald selten – er reteneren – han skurser Grande forden er kriteringsberkening	on vaa – y a aminim minis mej ary kritain aan makkata kirja hakin y a - tradi ( ny argandadahaada Katanashay kalada ( 1 a jabe 1 a at 1 ta yalay ayah ka yanaga maharin ah da ny 1 ta fallada (	on die 1510 en napflemente odrefer in monte oarskelenderen werd dieselfellemendelsterman kommelle gel. Diesen van methodische die globelen fach hindre sellende de stermanisjester in die skreite	Yosicky	Characte tylic for usad			
Line Item:	Page No:	Profile No:	Treatability Group: MON-WASTEW+TER		Disposal Category			
25	4 ?	CH284638	M. New ANS 1 C 1.1.2.   C 1.2.	ž .	This is subject to LDR			
EPA Waste	Codes			EPA W	Vaste Subcategory			
The state of the s			Texicity Characteristic for Lead					
Line Item:	Fage No:	Profile No:			risposal Category:			
	4	C#1268828	MON-MASTEMATER	į 2:	This is subject to I.DR.			
EPA Waste	Codes				vaste Subcategory			
5001	a bilinga ay i sera y pray yakinari	The second secon	the same of the transfer density by the same and the same		Characteristic for Arsenio	of space supply to the statement of send order to		
2008		ner ayering women days. Abundaham anderso victorias manacidaturand m	o and the second se	Dalony Characteristic for Lead				
0016		t. Andrew artis of an tamont, on the managery a casion in many help, for any	arine arinem producestal arine the exception from the constitute of the effects	162644	Characledelic for Salarbud	n purpose amountes many among to a chaptante material		



EPA 10# M O D 0 0 7 1 5 2 9 0 3

### Land Disposal Restriction Notification Form

Page 4 of 5

Date 12/13/2007

Manifest Dooument No: 00001

Manifest No

Wanifest No

Address: 4811 W Kearney

Springfield, MO 65903

Manifest No

001020598 FLE

Springfield, MO 65903

Sales Order No: CK1709663

Certification

Certification

Certification

Certification

Certification

Certification

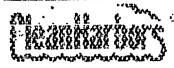
Pursuant to 40 CFR 268.7(a), I hereby notify that this shipment contains waste restricted under 40 CFR Fart
7 9 10 11
12 13 15 17
18 19 20 21
23 24 26 26

This waste is not restricted as specified in 40 CFR 268 Subpart D.

46 27 28 29
30 31 32 33
34 35 36

I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR part 268 subpart D. I believe that the information I submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting a faise certification, including the possibility of a fine and impresonment.

22



## Land Disposal Restriction Notification Form

Page 5 of 5

Date: 12 / 13 / 2007

MANIFEST INFORMATION					
Generator: Northrop Grumman	Manifest No				
Address: 4811 W Kearney	001020595 FLE				
Springfield, MO 65803	Sales Order No: CK1709863				
EPA ID# M O D 0 0 7 1 5 2 9 0 3	Manifest Document No: 00001				

Waste analysis data, where available, is attached	· .
Signature: a & L	Print Name: Ada Syli-
Title: Env. Fry.	Date: 12/13/07





Contained-out determination Kifer, Evan Dedriel Newsome 12/06/2010 01:40 PM Show Details

#### 1 Attachment



Contained-Out Determination Approval Document with Signature 3-04-10.pdf

Let me know if you need anything else!!

#### Department of Natural Resources Division of Environmental Quality Hazardous Waste Program

"Contained-Out" Determinations for the Former Litton Systems, Inc. Site 4811 West Kearney Street, Springfield, Missouri

March 1, 2010

#### I. INTRODUCTION

Northrop Grumman Systems Corporation (Northrop Grumman), owner of the former Litton Systems, Inc. site (Litton) in Springfield, Missouri, has requested that the Missouri Department of Natural Resources (MDNR) make contained-out determinations for trichloroethylene (TCE), methyl ethyl ketone, methylene chloride and 1,1,1 trichloroethane. Contained-out determinations would apply to environmental media generated at the site in conjunction with site remediation activities.

MDNR is currently overseeing work being conducted at the former Litton site by the site owner, Northrop Grumman. Activities at the site are focused on the investigation, evaluation, and implementation of remediation for soil and groundwater contamination that exists within identified Areas of Concern (AOCs).

Within site soils, three subcategories have been identified. These are: 1) soils contaminated with metals, primarily copper; 2) soils contaminated with volatile organic compounds (VOCs), primarily trichloroethylene (TCE); and 3) soils contaminated with both metals and VOCs. The following list identifies the various site AOCs and the associated contaminants found there. These areas are identified on the attached figure.

- 1.) Area Near SB-19 (Pilot Study Area) VOCs
- 2.) Former New Acid Pit (NAP) VOCs and Metals
- 3.) Former Original Acid Pit (OAP)(including the OAP East and West and Sludge Pit East and West) VOCs and Metals
- 4.) Former Percolation Terrace Metals
- 5.) Former A/B Lagoon Metals
- 6.) Building Footprint Subfloor VOCs and Metals
- 7.) Former Sanitary Lagoon Metals

The technology selected to remediate site VOC contamination is Electrical Resistive Heating (ERH), which essentially heats the soil and groundwater column to the bedrock interface within a specific AOC to volatilize the VOCs. The subsequent vapors and moisture are extracted, using a single phase or dual phase extraction system, and treated prior to discharge. The remediation of soils contaminated with VOCs in the Pilot Study Area is complete and the remediation of soils in the NAP with both metals and VOCs is near completion. The technology selected for AOCs having both metals and VOCs contamination is treatment using ERH, followed by the installation of an earthen cover or paved barrier. ERH is extremely effective at treating soil contaminated with VOCs and a

target concentration of 0.4 mg/kg of TCE in soil has been approved as the remediation goal. This concentration is lower than the site-specific calculated risk level of 4.6 mg/kg based on the *Targeted Risk Assessment of On-Site Soils, November 2006*, prepared by Stantec Consulting, formerly SECOR International.

Some of the remediation and general construction activities being conducted at the site may generate carbon from soil vapor treatment, sediment from water treatment or well components, soil borings, and possibly excavated soil for offsite disposal. This has raised the question of whether any of the excavated soil or solid environmental media generated onsite would be subject to Resource Conservation and Recovery Act (RCRA) Subtitle C hazardous waste requirements before and after treatment. Site investigations and review of prior disposal practices indicate that some site soils within certain AOCs were contaminated by listed hazardous wastes. Consequently, some soil and solid environmental media may be hazardous waste, if excavated from these AOCs, unless the state makes a site-specific risk-based determination that the soil in these AOCs does not contain hazardous waste. Such a determination is generally referred to as a contained-out determination. Without this determination, possible future development of the site could be limited due to the costs of handling, treating, and disposing of such materials from the site.

Relevant U.S. Environmental Protection Agency (EPA) policies and guidance are summarized in a memo titled, *Management of Remediation Waste Under RCRA*, from Timothy Fields, Jr. and Steven A. Herman, EPA 530-F-98-026, (October 14, 1998). We have made extensive use of the discussion of the "contained-in" policy found in the preamble to the LDR Phase IV Final Rule, 63 Fed. Reg. 28556 (May 26, 1998).

#### II. BACKGROUND

#### A. Characteristic and Listed RCRA Hazardous Waste Identification

Some of the site soils and solid environmental media may fail the TCLP test and exhibit a RCRA toxicity characteristic of hazardous waste. Consequently, that material, if removed and managed outside of an AOC, would be subject to the Missouri Hazardous Waste Management Law and its implementing regulations. However, it is anticipated that a significant amount of the soil and solid environmental media generated at the site will not fail TCLP and, consequently, will not be considered characteristic hazardous waste. Nonetheless, some soil and solid environmental media that pass the TCLP test may still require handling as hazardous waste, if they contain low detections of listed hazardous waste, even if the removed soils were within an AOC treated by ERH.

Listed hazardous waste is identified by the source of the hazardous waste, rather than by the concentration of hazardous constituents. Analytical testing alone, without information pertaining to the waste's source, will not produce information that will conclusively indicate whether a waste is a listed hazardous waste. Depending on its source, a chemical found in a soil sample even at low levels may be an F-listed hazardous waste from a non-specific source (40 C.F.R. § 261.31), a K-listed hazardous waste from a

specific source (40 C.F.R. § 261.32), or a P-listed or U-listed hazardous waste that is a discarded commercial product, off-specification species, container residue, or spill residue thereof (40 C.F.R. § 261.33).

#### B. <u>Determination of When Contamination is Caused by Listed Hazardous Waste</u>

In many remediation situations, very little is known about the source of the hazardous substances at a site. The EPA recommends that the lead agency use available site information, such as storage records and manifests in an effort to ascertain the sources of wastes but "when this documentation is not available or inconclusive, the lead agency may assume that the wastes (or contaminants) are not listed RCRA hazardous wastes." See *Management of Remediation Waste Under RCRA*, and discussion in preambles to the then proposed regulations, 53 Fed. Reg. 5144 (December 21, 1988), 55 Fed. Reg. 8758 (March 13, 1990), and 61 Fed. Reg. 18805 (April 29, 1996). The EPA approach is that a hazardous substance found in a site sample is not a specific listed hazardous waste when generated unless there is evidence indicating that the source of the hazardous substance itself is a listed hazardous waste. Since there is often very little or no evidence regarding the source of hazardous substances found in soil at a site, the hazardous substances are generally not considered to be listed hazardous wastes.

At this site, much of what is known about the historical handling and management of waste at the site was obtained from several former site employees. The information obtained from these former employees suggests that F-listed hazardous waste may have been disposed of in discreet areas at the site. Extensive sampling conducted at the site thus far has indicated the presence of trichloroethylene, 1,1,1 trichloroethane, methylene chloride, and methyl ethyl ketone. The information from the former employees and the sampling have suggested the presence of these VOCs as an F-listed hazardous waste at three AOCs located at the site:

- Former New Acid Pit (NAP),
- Former Old Acid Pit (OAP); and
- a portion of the Building Footprint Subfloor beneath the former Electroless plating area.

See Figure. The source of contamination at the Pilot Study Area is unknown.

#### C. The "Contained-in" Policy

EPA policy decisions have established that contaminated environmental media, such as soil and groundwater, are not themselves hazardous wastes because the media are not inherently waste-like in nature and, therefore, are not solid wastes. Rather, the EPA's interpretation has been that such media, if excavated and managed outside an AOC, must be managed as hazardous wastes if they exhibit a characteristic of hazardous waste or contain listed hazardous waste. Conversely, if the soil does not contain hazardous waste, then the soil does not need to be managed as hazardous waste as discussed in 63 Fed. Reg. 28521 (May 26, 1998):

In practice, the EPA has applied the "contained-in" principle to refer to a process where a site-specific determination is made that concentrations of hazardous constituents in any given volume of environmental media are low enough to determine that the media does not "contain" hazardous waste. Typically, these so called "contained-in" determinations do not mean that no hazardous constituents are present in environmental media but simply that the concentrations of hazardous constituents present do not warrant management of the media as hazardous waste. For contaminated soil, the result of "contained-in" determinations is that soil no longer "contains" a hazardous waste.

This is sometimes also called a "contained-out" or "no longer contained-in" determination.

In the October 14, 1998, EPA memo, Management of Remediation Waste Under RCRA, cited above, "contained-in" determinations are described as follows:

In the case of media that are contaminated by listed hazardous waste, current EPA guidance recommends that "contained-in" determinations be made based on direct exposure using a reasonable maximum exposure scenario and that conservative, health-based, standards be used to develop the site-specific health-based levels of hazardous constituents below which contaminated environmental media would be considered to no longer contain hazardous waste. Since this determination involves development of site-specific health-based levels, the approval of the EPA or an authorized state is required.

This memo also provides a mechanism to eliminate managing media as a listed hazardous waste if:

- (1) it no longer exhibits a characteristic of hazardous waste; and
- (2) concentrations of hazardous constituents from listed hazardous wastes are below health-based levels.

### III. CONTAINED-OUT DETERMINATIONS FOR LISTED HAZARDOUS WASTES AT THE SITE

The contained-out determinations for listed hazardous wastes proposed herein are intended to apply to the soil and solid environmental media generated by current and future site activities within the NAP, OAP, and Building Footprint Subfloor AOCs at the former Litton site. These are the only areas of the site where there is evidence indicating that the source of the soil impacts may have been listed hazardous wastes. Therefore, pursuant to the EPA guidance referenced above, a contained-out determination is not needed for other areas of the site where there may be soil impacts since such impacts would not contain listed hazardous wastes.

In making a determination of appropriate contained-out health-based levels for excavated soil and solid environmental media generated on-site, it is appropriate to consider any possible future use of the on-site area, as well as the potential use of any offsite disposal site for soil or solid environmental media removed from the site. Although the future use of any offsite disposal facility such as a subtitle D or municipal landfill may reasonably

be expected to continue to be a landfill, the contained-out levels being proposed in this approval document for excavated soils and solid environmental media generated onsite are largely based on EPA Region 6 Regional Screening Levels (RSLs) for residential soil last updated in 2008 (which are the same as Region 3 & 9 RSLs). The conservative approach of utilizing residential screening levels considers potential future use of the onsite area as well as offsite alternatives other than a landfill.

Sampling during the investigation of the site has identified the presence of two potentially listed hazardous wastes that also could be potential toxicity characteristic hazardous wastes: trichloroethylene and methyl ethyl ketone. In addition to the potential listed hazardous waste designation (F002 and F005) for each of these compounds, trichloroethylene may be a toxicity characteristic hazardous waste (D040), if present at concentrations above the regulatory level of 0.5 mg/L. The compound methyl ethyl ketone may be a toxicity characteristic hazardous waste (D035), if present at concentrations above the regulatory level of 200 mg/L. If the results of TCLP sampling exceed the toxicity characteristic levels for these or any other contaminant or exhibit any other hazardous characteristic, soil or solid environmental media will be managed as a characteristic hazardous waste.

#### Determination 1

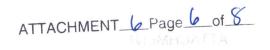
The MDNR is making a determination regarding trichloroethylene, such that any soil or solid environmental media removed from the NAP, OAP, or the Building Footprint Subfloor Area that contains trichloroethylene at concentrations below 2.8 mg/kg is no longer deemed to be an F002 hazardous waste. Only trichloroethylene present in soils in these areas at concentrations greater than 2.8 mg/kg will be deemed an F002 hazardous waste, if removed and managed outside these areas. This contained-out level of 2.8 mg/kg is the EPA Region 6 RSL for residential soil.

#### Determination 2

The MDNR is making a determination regarding methyl ethyl ketone, such that any soil or solid environmental media removed from the NAP, OAP, or the Building Footprint Subfloor Area that contains methyl ethyl ketone at concentrations below 28,000 mg/kg is no longer deemed to be an F005 hazardous waste. Only methyl ethyl ketone present in soils in these areas at concentrations greater than 28,000 mg/kg will be deemed an F005 hazardous waste, if removed and managed outside these areas. This contained-out level of 28,000 mg/kg is the EPA Region 6 RSL for residential soil.

#### **Determination 3**

The MDNR is making a determination regarding methylene chloride, such that any soil or solid environmental media removed from the NAP, OAP, or the Building Footprint Subfloor Area that contains methylene chloride at concentrations below 11 mg/kg is no longer deemed an F002 hazardous waste. Only methylene chloride present in soils in these areas at concentrations greater than 11 mg/kg will be deemed an F002 hazardous waste, if removed and managed outside these areas. This contained-out level of 11 mg/kg is the EPA Region 6 RSL for residential soil.



#### Determination 4

The MDNR is making a determination regarding 1,1,1 trichloroethane, such that any soil or solid environmental media removed from the NAP, OAP, or the Building Footprint Subfloor Area that contains 1,1,1 trichloroethane at concentrations below 680 mg/kg is no longer deemed an F002 hazardous waste. Only 1,1,1 trichloroethane present in soils in these areas at concentrations greater than 680 mg/kg will be deemed an F002 hazardous waste, if removed and managed outside these areas. This contained-out level of 680 mg/kg is the saturation concentration for 1,1,1 trichloroethane. Levels above this concentration raise concerns about physical hazards such as flammability and/or explosivity due to the presence of free phase product. A level of 680 mg/kg is significantly below the EPA Region 6 RSL for residential soil of 9,000 mg/kg, but was recommended by the Missouri Department of Health and Senior Services.

#### IV. CONCLUSION

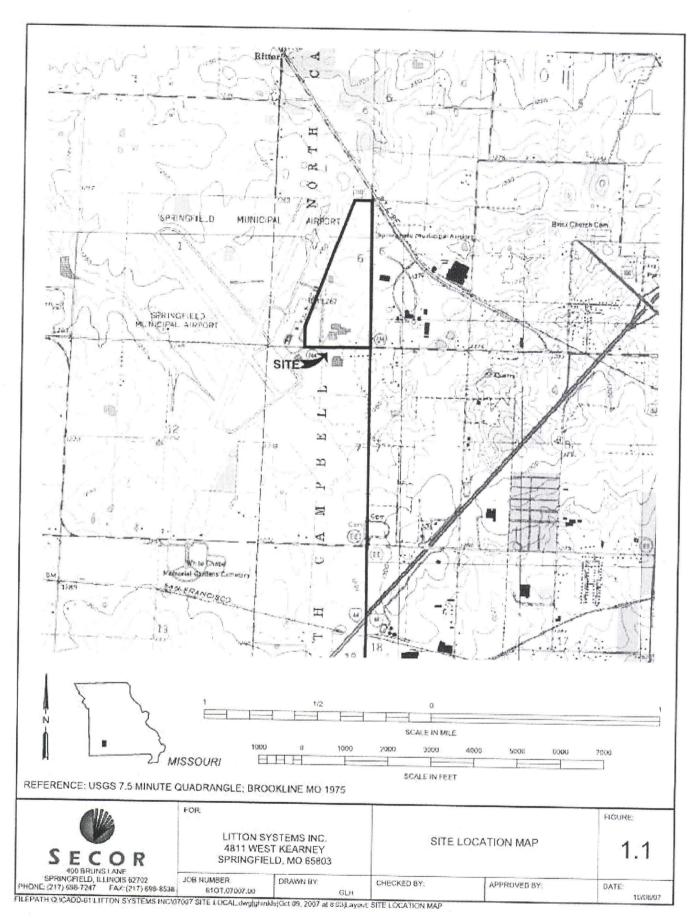
The Superfund Section, with input from the Compliance and Enforcement Section of the Hazardous Waste Program, the Department of Health and Senior Services, and the Missouri Attorney General's Office, recommends and requests the HWP approve of the above determinations such that soil and solid environmental media generated by current and future site activities in the NAP, OAP and Building Footprint Subfloor Area at concentrations below the contained-out levels specified above are not deemed to contain the listed hazardous wastes of trichloroethylene, 1,1,1 trichloroethane, methylene chloride, and methyl ethyl ketone and, thus, do not need to be managed as listed hazardous wastes. If the soil and solid environmental media that meet the contained out criteria exhibit any hazardous characteristic, they will be managed as characteristic hazardous wastes.

APPROVED:

Robert Geller, Director

Hazardous Waste Program

March 4,2010
Date



#### HANDLER INFORMATION REPORT

#### Procedures for Inspectors performing Site Visits

If the facility wants to make a change, they must complete a Notification of Regulated Waste Activity form # MO780-1164, and send it to the Department of Natural Resources, Waste Management Program, PO Box 176, Jefferson City, MO 65102. The form can be found at http://www.dnr.mo.gov/forms/780-1164.pdf

If during the course of the site visit, the inspector/investigator becomes aware of any changes which should be made to the information printed on this form, please make the corrections and return the form to: Beth Koesterer, AWMD/WEMM.

EPA RCRA ID Number:

MOD007152903

Name of Company/Site: Location of Site:

NORTHROP GRUMMAN GUIDANCE AND ELECTRONICS COMPANY INC

4811 W KEARNEY ST

SPRINGFIELD, MO 65803

GREENE County

Land Type:

Private

NAICS:

56291 - REMEDIATION SERVICES

Mailing Address:

P O BOX 1693 MAIL STOP 1401 BALTIMORE, MD 21203

Site Contact:

Email:

ADAM E SAYLOR Job Title:

Address:

SR ENVIRONMENTAL ENGINEER

P O BOX 1693

MAIL STOP 1401

BALTIMORE, MD 21203 ADAM. SAYLOR@NGC.COM

Phone Number: (410) 993-7080

Current Owner of Site:

Owner Type:

NORTHROP GRUMMAN GUIDANCE & ELECTRONICS

Private

Current Operator of Site:

Phone Number: Operator Type: NORTHROP GRUMMAN GUIDANCE & ELECTRONICS

(410)993-7080

Private

TYPE(S) OF REGULATED ACTIVITY: Federal Large Quantity Generator

Hazardous Wastes Handled:

F002 F003 F005

I 03/13/92 1 1st N 09/27/99 N 05/04/09 1

Certified by Notification

on 02/22/10 by

JAY TOLLE 02/04/10

MANAGER, ENVIRONMENTAL PROGRAMS & REMEDIATION

Date of Site Visit: 11/18/10

Name of Inspector (Please print): Dedvie (Check one): FPA R7 ENSV DEPA R7 Contractor NOWCC/SEE Investigator

Signature of Inspector:

ATTACHMENT 7 Page

Appendix 1-3
Facility: Northrop Grumman Date: 11/18/10 Arrival time: 9:30AM
DRIVE-BY
1. Drive-by conducted from public right-of-way?
2. Determine the direction "North" with respect to the facility and provide a brief sketch of the layout and orientation (as can be viewed from the public right-of-way):
3. Obvious concerns visible from public right-of-way (photos)?   Yes   No  - Containers - Tanks - Processing Equipment - Loading Areas
- Containers - Tanks - Processing Equipment - Loading Areas - Unloading Areas - Security Devices - Open Drums - Stressed Vegetation
-Unusual Staining - Unusual Odors - Obvious Discharges - Improper Disposal
- Safety Concerns - Other Concerns
Appendix 1-4 <u>SITE ENTRY AND INBRIEFING</u> sel report for discussion of arrangements made with Adam Saylor.
1. Dused main entrance Entered during normal operating hours DExcessive delays (>1.5 minutes - denial of access?) - Do
1. Subsed main entrance
2. Facility Representative(s): Creg Michael Title: Sr. Engineer (07)
2. Facility Representative(s): Greg Michael  Mark Dengmore  Title: Sr Geologist (since 22c)
Title:
THE.
3. Does representative have intimate knowledge of all waste management practices?
How long in position?
4. Introduction:  Presented credentials
Explained responsibility to provide accurate information and provided copies of Section 1001 and 1002 U.S.C. to facility
Yerified presence at correct facility (checked address/I.D.#)
Explained authority to conduct inspection (Section 3007 of RCRA)  Explained the purpose, scope, and order of the inspection
Completed Multimedia screening checklist
Explained documentation process - worksheets, checklists, photos, notes, statements, etc
Provided SBRFA 3 closed facility going thru remediation
Obtained GPS reading  Explained facility's right to claim CBI
5. Was full access granted?  Yes  By facility representative or Other (name):
☐No - Access denied. Name of person denying access:
Time of denial: Contacted Adam Saylor on 11/16/10 and informed
him of inspection since no one on site, or
Reason for denial, or limitations placed on access:

### **Inspector Worksheet**

Inspector: DEDRIEL NEWSOME

JFA 110

Facility Name: Northrop Grumman  Address: 4811 West Kearney St		ectronics Co.	Media: R	CRA	Federal Facility: 🗌 Yes			
City: Springfield	i ect	State: MO Z	<b>IP</b> : 65803	County: Greene				
Facility Activity:	Selection Criteri	a - 1:		on Criteria - 2:				
	LQG (KS,MO,N	NE)						
	Activity #:	NAICS/SIC Code						
	MOD007152903			BETH KOEST	ER			
Quarter Requested: Any Quarter	Quarter: Fisca	I Year: 2011	Last Inspection:	12/06/2005 F	Planned Inspection:			
Major or Minor: ACS Code:	Forward C	Copy of MMSC to:	Comments:					
FF Commitment Comments: Federal Facility Program Commitment:								
Reason For Inspection:								
11/18/10	port Transmittal	Report Co	empletion	leted by the				
yes No N\A Yes	No NA	Yes No	□ N A □ Yes	□ No □	N A Yes No N\A			
MM Type MM Level	MM Participating F	Program * * A=C	AA, W=CWA, R=R	CRA. E/T=EPCRA/	rsca.			
			T, C=CFC, U-I=UIC		,			
MM Screening Complete? X Yes	□ No □ N\A				FC			
MM Screening Forwarded? Yes	No If Yes, wh	o?→ ☐ CWA ☐	☐ CAA ☐ E/T☐ UIC☐	☐ EMS ☐ C	FC RCRA ISO 14001  J SPCC Wetlands			
Increase Finally and Community (1)								
This facility has cle remediated under	osed + is in the oversig	the proof	cess of be DNR Sup	ing innerfund	estigated of			
Target Quality (Good / Bad - Why?)								
Closed facility								
					15112110			
	**** For Co	ntractor Insp	ections Only	***				
Contracting Officer:			Date of First		Date of Final Report			

#### **MEMORANDUM**

SUBJECT: RCRA Compliance Evaluation Inspection at

Northrop Grumman Guidance and Electronics Company, Inc., Springfield, MO

MOD007152903

FROM:

Dedriel Newsome, Environmental Engineer

ENSV/EFCB

THRU:

John Houlihan, Chief

ENSV/EFCB

TO:

Donald Toensing, Chief

AWMD/ RESP

At the request of Air & Waste Management Division (AWMD), I performed a Resource Conservation and Recovery Act (RCRA) compliance evaluation inspection (CEI) at the Northrop Grumman Guidance and Electronics Company, Inc. in Springfield, MO (Northrop-Springfield). Northrop-Springfield is located at 4811 W. Kearney St, Springfield, MO 65803. The mailing address is P.O. Box 1693, Mail Stop 1401, Baltimore, MD 21203. I conducted the inspection on 11/18/2010 under the authority of RCRA Section 3007(a), as amended. During the inspection, I collected the information and data necessary to determine compliance with the applicable regulatory and statutory requirements. This memo and attachments present the results of the inspection. I conducted the inspection as a Level B Multi-Media Inspection and the Multi-Media Screening Checklist is included as attachment 1. Based on the information obtained during the course of the inspection, I inspected the facility as a conditionally exempt small quantity generator (CESQG) of hazardous waste. According to the EPA RCRAInfo database, this facility was last inspected by the EPA on 12/6/2005. Five violations were observed for management of satellite accumulation containers, job descriptions and incomplete manifests during the 2005 CEI.

#### **Inspection Procedures**

On the afternoon of 11/15/2010, I conducted a drive-by evaluation of Northrop-Springfield. There were no buildings visible on-site. Therefore, on 11/16/2010, I contacted Mr. Saylor, the facility contact listed in the EPA RCRAInfo database. I informed him that I wanted to conduct a CEI at the Northrop-Springfield facility. Mr. Saylor stated that he was located in

D.Newsome:va:12/07/10

EFCB

12/2/10

1

Baltimore, MD and that they had no company personnel located in Springfield, MO. Mr. Saylor and I made arrangements for me to meet with their contractor, Stantec Consulting (Stantec), Springfield, IL, at the trailer office located on-site on 11/18/2010 at 9:30A.M.

On 11/18/2010, I arrived at the site approximately 9:30A.M. and met two Stantec employees. They were Mark Densmore, Sr. Geologist, and Greg Michael, Sr. Engineer. They acted as the Northrop-Springfield facility representatives while I was on-site. However, they did not sign any of the inspection forms. Therefore, I emailed them to Mr. Saylor on 11/22/2010 for his signature. Mr. Saylor returned them on 11/23/2010 along with additional analytical information (see attachments 2 and 3). I also discussed my inspection findings with Mr. Saylor on the telephone at this time. Mr. Saylor requested that all EPA correspondence be sent to him at the above mailing address.

#### **Facility Description**

Northrop-Springfield is no longer operating. In approximately 2007, they sold what they could and demolished the building. Currently, Stantec is conducting on-site investigative and remediation activities. The investigative and remediation activities are being overseen by the Missouri Department of Natural Resources (MDNR), Division of Geology and Land Survey, Superfund Section. The MDNR contact is Evan Kifer located in Jefferson City, MO. Mr. Kifer stated that Northrop-Springfield is currently operating under a 1993 consent decree with MDNR that is in the process of being updated and expected to be finalized by December 2010. The contaminants are primarily tetrachloroethylene (TCE), 1,1,1-trichloroethane (TCA) and other "daughter" constituents. The areas of concern are shown on the layout included as attachment 4. Remediation activities currently include soil and groundwater treatment.

Soil remediation consists of Electrical Resistance Heating (ERH). A full-scale ERH system pilot was conducted on the New Acid Pit (NAP) area and was completed in approximately 2009. Based on the pilot results, an ERH system is currently being installed on the Original Acid Pit (OAP) Treatment Area (see attachment 3 for layout). The ERH system is expected to be operational by approximately January 2011 and the treatment is expected to take about six months. In general, the ERH system heats the soil to remove the contaminants. This generates steam and vapors which are captured. The steam is condensed and the water is discharged to an on-site wastewater treatment system (WWTS). The vapors from the high contaminated areas are treated in a catalytic oxidizer. The vapors from the low contaminated areas are treated in an activated carbon unit. The high and low contaminated areas are predetermined based on previous analytical sampling results.

Until about June 2010, contaminated groundwater was being extracted and treated in the on-site WWTS. The WWTS consisted of pumping the groundwater into a surge tank, treating it in an air stripper, and discharging it to the city sewer under a pretreatment agreement with the city. Northrop-Springfield has about 14 groundwater recovery wells on-site. Since June 2010, Emulsified Vegetable Oil (EVO) is being used to treat the contaminated groundwater. This treatment process consists of injecting a vegetable oil/bacteria culture mix into the groundwater for degradation of contaminants.

The manifest for the last shipment of hazardous waste manifested off-site when Northrop-Springfield ceased operating in 2007 is included as attachment 5f. Since that time, the wastes generated on-site consisted of the following:

- **Spent Activated Carbon** was generated twice from the ERH pilot study. It was generated on 3/25/2009 and 9/29/2008. It was collected in containers and manifested offsite on 4/9/2009 and 12/10/2008, respectively. It was manifested as a F002/F003/F005 hazardous waste to Clean Harbors (see attachments 5d and 5e for manifests).
- Soil Cuttings, Sampling Cores and Sediment are occasionally generated on-site. When they are generated from a contaminated area that is not RCRA hazardous, then they are handled as non-hazardous waste. When they are generated from a contaminated area that is RCRA hazardous, then they are handled as hazardous waste. On 8/17/2009, 7 tons of hazardous soil cuttings were generated on-site. They were manifested off-site on 9/28/2009 to Clean Harbors as a F002/F003/F005 hazardous waste (see attachment 5a for manifest). On 3/25/2009, 4950 pounds of hazardous sampling cores from the NAP pilot ERH system were generated. They were manifested off-site on 4/9/2009 to Clean Harbors as a F002/F003/F005 hazardous waste (see attachment 5c for manifest). On 9/28/2009, 9 tons of non-hazardous soil cuttings were manifested off-site to Clean Harbors (see attachment 5b for manifest).

A signed LDR notice for the 7 tons of F002 soil cuttings manifested off-site on 9/29/2009 could not be located at the time of the inspection. Mr. Saylor stated that they maintain a copy of the manifests on-site and he also maintains an official file in Baltimore, MD. Mr. Saylor stated that he had a copy of the signed LDR notice that was sent with the manifest shipment. He emailed me the signed LDR notice on 11/19/2010 (see attachment 5a.i).

At the time of the inspection, I observed two drums labeled as non-hazardous waste onsite. They were a drum of sediment from water that was removed from the non-hazardous A/B Lagoon area and a drum of Geoprobe soil cuttings from the non-hazardous sanitary lagoon. I asked for the analytical results relating to these two waste streams. The data could not be located at the time of the inspection. Mr. Saylor emailed me this data on 11/23/2010 verifying that these wastes were non-hazardous. The data is included as attachment 3, pages 5 through 10.

• Air Stripper Residue is generated from the WWTS air stripper unit. It consists of hardened residue (lime stone) that clogs the holes in the stripper trays. The trays were cleaned twice (exactly when was unknown) since 2008. Mr. Michael stated that the hardened residue was physically removed and that no chemicals were used. He stated that about 5 to 10 gallons of residue were generated from each cleaning. The air stripper residue would appear to be a F002/F003/F005 hazardous waste sludge. The residue was returned to the OAP Treatment Area (see attachment 4 for layout). I discussed this disposal with Mr. Kifer and he stated that it was acceptable. He stated that they have let them consolidate some of the wastes on-site in the past. It should be noted that now the

OAP Treatment Area is capped by the ERH system. Therefore, any air stripper residue generated in the future will have to be handled differently.

- Surge Tank Residue builds up in the cone shaped bottom surge tank. Mr. Michael believed that the tank was cleaned once since 2008. He stated that he did not know the amount of residue that was generated, but would guess that it was less than 100 gallons. The surge tank residue would appear to be a F002/F003/F005 hazardous waste sludge. Mr. Michael stated that the tank residue was returned to the OAP Treatment Area (see attachment 4 for layout). I discussed this disposal with Mr. Kifer and he stated that it was acceptable the same as the air stripper residue above. Mr. Michael estimated that currently the surge tank contains about two feet of residue. It should be noted that now the OAP Treatment Area is capped by the ERH system. Therefore, any surge tank residue generated in the future will have to be handled differently.
- Personal Protective Equipment (PPE) is used on-site. Nitrile gloves are worn during sampling activities. Approximately one to two 2-lb boxes of spent gloves are generated a quarter. Any gloves contaminated with listed waste would also appear to be listed due to the contained-in policy. These gloves were determined to be non-hazardous by Northrop-Springfield based on knowledge and were disposed in the general trash. I discussed this determination with Mr. Kifer and he stated that Northrop-Grumman received approval for a contained-out determination (see attachment 6). According to the contained-out determination approval document, the contained-out determinations for listed hazardous wastes proposed therein was intended to apply to the soil and solid environmental media generated by current and future site activities within the NAP, OAP, and Building Footprint Subfloor area of concerns (see attachment 6, page 5).
- General Trash consists of paper, refuse, cardboard, etc. It is collected in an
  approximately 2-cubic yard dumpster. Allied Waste, Springfield, MO is contacted as
  needed to collect the waste which is about once a month.

Mr. Michael and Mr. Densmore stated that no waste is generated from the EVO treatment process. Also, there have been no universal waste lamps or batteries generated on-site since the facility closed.

Northrop-Springfield last notified on 5/4/2009 as a large quantity generator (LQG) of F002, F003 and F005 hazardous wastes according to the EPA RCRAInfo database (see attachment 7). I reviewed the RCRAInfo Handler Sheet for any incorrect data and none were noted as shown on attachment 7. Based on the latest manifests provided for review and known hazardous wastes generation dates, it appears that Northrop-Springfield last manifested hazardous waste off-site in September 2009 (see attachments 5a through 5e). They manifested 7 tons of F002 hazardous waste and would have been a LQG at that time. Since September 2009 it appears that they did not generate any hazardous waste other than a small amount of air stripper residue and the estimated 100 gallons of surge tank residue. However, exactly when the air stripper residue and surge tank residue were generated was unknown. Therefore, at the time of the inspection, I inspected Northrop-Grumman as a CESQG. However, they will probably be a SQG or LQG again at various times when the surge tank is cleaned, the ERH system is operating

and/or other remedial activities are conducted on-site. The Entry / Exit checklist completed during the inspection is included as attachment 8.

#### Attachments

- 1. Multi-Media Inspection Checklist (2 pages)
- 2. 11/22/2010 EPA Email Requesting Signature on the Confidentiality Notice and Document of Receipt (4 pages)
- 3. 11/23/2010 Northrop-Springfield Email Returning the Signed Confidentiality Notice and Document of Receipt Along with Additional Analytical Information (10 pages)
- 4. Facility Layout with Areas of Concern Noted (1 page)
- 5. Manifest Documents
  - a. 9/28/2009 Manifest and Unsigned LDR Notice -F002 soil cuttings (2 pages) i. Email with Signed LDR Notice for 9/28/09 Manifest (2 pages)
  - b. 9/28/2009 Manifest and LDR Notice –non-hazardous soil cuttings (1 page)
  - c. 4/9/2009 Manifest and LDR Notice F002/F003/F005 NAP pilot sampling cores (7 pages)
  - d. 4/9/2009 Manifest and LDR Notice F002/F003/F005 spent activated carbon-2nd batch when pilot was done (3 pages)
  - e. 12/10/2008 Manifest and LDR Notice F002/F003/F005 spent activated carbon-1st batch when pilot was operating (3 pages)
  - f. 12/13/2007 Manifest and LDR Notice last manifest shipment of various hazardous wastes when facility closed (10 pages)
- 6. 12/6/2010 Email of the Contained-Out Determination Approval Document (8 pages)
- 7. EPA RCRAInfo Handler Information Report (1 page)
- 8. Entry / Exit Checklist (2 pages)

#### **MEMORANDUM**

SUBJECT: RCRA Compliance Evaluation Inspection at

Northrop Grumman Guidance and Electronics Company, Inc., Springfield, MO

MOD007152903

FROM: Dedriel Newsome, Environmental Engineer

ENSV/EFCB

THRU: John Houlihan, Chief

**ENSV/EFCB** 

TO: Donald Toensing, Chief

AWMD/ RESP

At the request of Air & Waste Management Division (AWMD), I performed a Resource Conservation and Recovery Act (RCRA) compliance evaluation inspection (CEI) at the Northrop Grumman Guidance and Electronics Company, Inc. in Springfield, MO (Northrop-Springfield). Northrop-Springfield is located at 4811 W. Kearney St, Springfield, MO 65803. The mailing address is P.O. Box 1693, Mail Stop 1401, Baltimore, MD 21203. I conducted the inspection on 11/18/2010 under the authority of RCRA Section 3007(a), as amended. During the inspection, I collected the information and data necessary to determine compliance with the applicable regulatory and statutory requirements. This memo and attachments present the results of the inspection. I conducted the inspection as a Level B Multi-Media Inspection and the Multi-Media Screening Checklist is included as attachment 1. Based on the information obtained during the course of the inspection, I inspected the facility as a conditionally exempt small quantity generator (CESQG) of hazardous waste. According to the EPA RCRAInfo database, this facility was last inspected by the EPA on 12/6/2005. Five violations were observed for management of satellite accumulation containers, job descriptions and incomplete manifests during the 2005 CEI.

#### **Inspection Procedures**

On the afternoon of 11/15/2010, I conducted a drive-by evaluation of Northrop-Springfield. There were no buildings visible on-site. Therefore, on 11/16/2010, I contacted Mr. Saylor, the facility contact listed in the EPA RCRAInfo database. I informed him that I wanted to conduct a CEI at the Northrop-Springfield facility. Mr. Saylor stated that he was located in

D.Newsome:va:12/07/10

EFCB EFCB

Baltimore, MD and that they had no company personnel located in Springfield, MO. Mr. Saylor and I made arrangements for me to meet with their contractor, Stantec Consulting (Stantec), Springfield, IL, at the trailer office located on-site on 11/18/2010 at 9:30A.M.

On 11/18/2010, I arrived at the site approximately 9:30A.M. and met two Stantec employees. They were Mark Densmore, Sr. Geologist, and Greg Michael, Sr. Engineer. They acted as the Northrop-Springfield facility representatives while I was on-site. However, they did not sign any of the inspection forms. Therefore, I emailed them to Mr. Saylor on 11/22/2010 for his signature. Mr. Saylor returned them on 11/23/2010 along with additional analytical information (see attachments 2 and 3). I also discussed my inspection findings with Mr. Saylor on the telephone at this time. Mr. Saylor requested that all EPA correspondence be sent to him at the above mailing address.

#### **Facility Description**

Northrop-Springfield is no longer operating. In approximately 2007, they sold what they could and demolished the building. Currently, Stantec is conducting on-site investigative and remediation activities. The investigative and remediation activities are being overseen by the Missouri Department of Natural Resources (MDNR), Division of Geology and Land Survey, Superfund Section. The MDNR contact is Evan Kifer located in Jefferson City, MO. Mr. Kifer stated that Northrop-Springfield is currently operating under a 1993 consent decree with MDNR that is in the process of being updated and expected to be finalized by December 2010. The contaminants are primarily tetrachloroethylene (TCE), 1,1,1-trichloroethane (TCA) and other "daughter" constituents. The areas of concern are shown on the layout included as attachment 4. Remediation activities currently include soil and groundwater treatment.

Soil remediation consists of Electrical Resistance Heating (ERH). A full-scale ERH system pilot was conducted on the New Acid Pit (NAP) area and was completed in approximately 2009. Based on the pilot results, an ERH system is currently being installed on the Original Acid Pit (OAP) Treatment Area (see attachment 3 for layout). The ERH system is expected to be operational by approximately January 2011 and the treatment is expected to take about six months. In general, the ERH system heats the soil to remove the contaminants. This generates steam and vapors which are captured. The steam is condensed and the water is discharged to an on-site wastewater treatment system (WWTS). The vapors from the high contaminated areas are treated in a catalytic oxidizer. The vapors from the low contaminated areas are treated in an activated carbon unit. The high and low contaminated areas are predetermined based on previous analytical sampling results.

Until about June 2010, contaminated groundwater was being extracted and treated in the on-site WWTS. The WWTS consisted of pumping the groundwater into a surge tank, treating it in an air stripper, and discharging it to the city sewer under a pretreatment agreement with the city. Northrop-Springfield has about 14 groundwater recovery wells on-site. Since June 2010, Emulsified Vegetable Oil (EVO) is being used to treat the contaminated groundwater. This treatment process consists of injecting a vegetable oil/bacteria culture mix into the groundwater for degradation of contaminants.

The manifest for the last shipment of hazardous waste manifested off-site when Northrop-Springfield ceased operating in 2007 is included as attachment 5f. Since that time, the wastes generated on-site consisted of the following:

- **Spent Activated Carbon** was generated twice from the ERH pilot study. It was generated on 3/25/2009 and 9/29/2008. It was collected in containers and manifested offsite on 4/9/2009 and 12/10/2008, respectively. It was manifested as a F002/F003/F005 hazardous waste to Clean Harbors (see attachments 5d and 5e for manifests).
- Soil Cuttings, Sampling Cores and Sediment are occasionally generated on-site. When they are generated from a contaminated area that is not RCRA hazardous, then they are handled as non-hazardous waste. When they are generated from a contaminated area that is RCRA hazardous, then they are handled as hazardous waste. On 8/17/2009, 7 tons of hazardous soil cuttings were generated on-site. They were manifested off-site on 9/28/2009 to Clean Harbors as a F002/F003/F005 hazardous waste (see attachment 5a for manifest). On 3/25/2009, 4950 pounds of hazardous sampling cores from the NAP pilot ERH system were generated. They were manifested off-site on 4/9/2009 to Clean Harbors as a F002/F003/F005 hazardous waste (see attachment 5c for manifest). On 9/28/2009, 9 tons of non-hazardous soil cuttings were manifested off-site to Clean Harbors (see attachment 5b for manifest).

A signed LDR notice for the 7 tons of F002 soil cuttings manifested off-site on 9/29/2009 could not be located at the time of the inspection. Mr. Saylor stated that they maintain a copy of the manifests on-site and he also maintains an official file in Baltimore, MD. Mr. Saylor stated that he had a copy of the signed LDR notice that was sent with the manifest shipment. He emailed me the signed LDR notice on 11/19/2010 (see attachment 5a.i).

At the time of the inspection, I observed two drums labeled as non-hazardous waste onsite. They were a drum of sediment from water that was removed from the nonhazardous A/B Lagoon area and a drum of Geoprobe soil cuttings from the nonhazardous sanitary lagoon. I asked for the analytical results relating to these two waste streams. The data could not be located at the time of the inspection. Mr. Saylor emailed me this data on 11/23/2010 verifying that these wastes were non-hazardous. The data is included as attachment 3, pages 5 through 10.

• Air Stripper Residue is generated from the WWTS air stripper unit. It consists of hardened residue (lime stone) that clogs the holes in the stripper trays. The trays were cleaned twice (exactly when was unknown) since 2008. Mr. Michael stated that the hardened residue was physically removed and that no chemicals were used. He stated that about 5 to 10 gallons of residue were generated from each cleaning. The air stripper residue would appear to be a F002/F003/F005 hazardous waste sludge. The residue was returned to the OAP Treatment Area (see attachment 4 for layout). I discussed this disposal with Mr. Kifer and he stated that it was acceptable. He stated that they have let them consolidate some of the wastes on-site in the past. It should be noted that now the

OAP Treatment Area is capped by the ERH system. Therefore, any air stripper residue generated in the future will have to be handled differently.

- Surge Tank Residue builds up in the cone shaped bottom surge tank. Mr. Michael believed that the tank was cleaned once since 2008. He stated that he did not know the amount of residue that was generated, but would guess that it was less than 100 gallons. The surge tank residue would appear to be a F002/F003/F005 hazardous waste sludge. Mr. Michael stated that the tank residue was returned to the OAP Treatment Area (see attachment 4 for layout). I discussed this disposal with Mr. Kifer and he stated that it was acceptable the same as the air stripper residue above. Mr. Michael estimated that currently the surge tank contains about two feet of residue. It should be noted that now the OAP Treatment Area is capped by the ERH system. Therefore, any surge tank residue generated in the future will have to be handled differently.
- Personal Protective Equipment (PPE) is used on-site. Nitrile gloves are worn during sampling activities. Approximately one to two 2-lb boxes of spent gloves are generated a quarter. Any gloves contaminated with listed waste would also appear to be listed due to the contained-in policy. These gloves were determined to be non-hazardous by Northrop-Springfield based on knowledge and were disposed in the general trash. I discussed this determination with Mr. Kifer and he stated that Northrop-Grumman received approval for a contained-out determination (see attachment 6). According to the contained-out determination approval document, the contained-out determinations for listed hazardous wastes proposed therein was intended to apply to the soil and solid environmental media generated by current and future site activities within the NAP, OAP, and Building Footprint Subfloor area of concerns (see attachment 6, page 5).
- General Trash consists of paper, refuse, cardboard, etc. It is collected in an approximately 2-cubic yard dumpster. Allied Waste, Springfield, MO is contacted as needed to collect the waste which is about once a month.

Mr. Michael and Mr. Densmore stated that no waste is generated from the EVO treatment process. Also, there have been no universal waste lamps or batteries generated on-site since the facility closed.

Northrop-Springfield last notified on 5/4/2009 as a large quantity generator (LQG) of F002, F003 and F005 hazardous wastes according to the EPA RCRAInfo database (see attachment 7). I reviewed the RCRAInfo Handler Sheet for any incorrect data and none were noted as shown on attachment 7. Based on the latest manifests provided for review and known hazardous wastes generation dates, it appears that Northrop-Springfield last manifested hazardous waste off-site in September 2009 (see attachments 5a through 5e). They manifested 7 tons of F002 hazardous waste and would have been a LQG at that time. Since September 2009 it appears that they did not generate any hazardous waste other than a small amount of air stripper residue and the estimated 100 gallons of surge tank residue. However, exactly when the air stripper residue and surge tank residue were generated was unknown. Therefore, at the time of the inspection, I inspected Northrop-Grumman as a CESQG. However, they will probably be a SQG or LQG again at various times when the surge tank is cleaned, the ERH system is operating

and/or other remedial activities are conducted on-site. The Entry / Exit checklist completed during the inspection is included as attachment 8.

#### Attachments

- 1. Multi-Media Inspection Checklist (2 pages)
- 2. 11/22/2010 EPA Email Requesting Signature on the Confidentiality Notice and Document of Receipt (4 pages)
- 3. 11/23/2010 Northrop-Springfield Email Returning the Signed Confidentiality Notice and Document of Receipt Along with Additional Analytical Information (10 pages)
- 4. Facility Layout with Areas of Concern Noted (1 page)
- 5. Manifest Documents
  - a. 9/28/2009 Manifest and Unsigned LDR Notice –F002 soil cuttings (2 pages)
    - i. Email with Signed LDR Notice for 9/28/09 Manifest (2 pages)
  - b. 9/28/2009 Manifest and LDR Notice -non-hazardous soil cuttings (1 page)
  - c. 4/9/2009 Manifest and LDR Notice F002/F003/F005 NAP pilot sampling cores (7 pages)
  - d. 4/9/2009 Manifest and LDR Notice F002/F003/F005 spent activated carbon-2nd batch when pilot was done (3 pages)
  - e. 12/10/2008 Manifest and LDR Notice F002/F003/F005 spent activated carbon
    1st batch when pilot was operating (3 pages)
  - f. 12/13/2007 Manifest and LDR Notice last manifest shipment of various hazardous wastes when facility closed (10 pages)
- 6. 12/6/2010 Email of the Contained-Out Determination Approval Document (8 pages)
- 7. EPA RCRAInfo Handler Information Report (1 page)
- 8. Entry / Exit Checklist (2 pages)

12/07/2010 11:14 AM

App Jeffery Robichaud Gregory McCabe

---- Original Message -----

From: Gregory McCabe

Sent: 12/07/2010 10:20 AM CST

To: Jeffery Robichaud Cc: Vonna Arnold

Subject: credit leave/59 minute request

I need to leave around 2:15 today. I plan to use my '59 minutes' of 'other' leave, and the rest in credit leave.